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MULTIPLE PERSONALITY

AN EXPERIMENTAL INVESTIGATION INTO THE NATURE OF HUMAN INDIVIDUALITY

BY

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AND

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TO

PROFESSOR WILLIAM JAMES

OF HARVARD UNIVERSITY

WHO HAS DRAWN MY ATTENTION TO THE VAST AND IMPORTANT DOMAIN OF ABNORMAL MENTAL LIFE, WHO HAS INSPIRED ME WITH LOVE FOR THE STUDY OF THE "VARIETIES" OF HUMAN EXPERIENCES, WHO HAS GIVEN ME HIS SYMPATHY AND HEARTY SUPPORT IN MANY AN HOUR OF TRIAL, THIS WORK IS AFFECTIONATELY DEDICATED.

BORIS SIDIS.

PREFACE

THE case of double personality described in Part II is of great interest and is specially recommended to the reader's attention. This case has been investigated in the Pathological Institute of the New York State Hospitals. Sincere thanks are therefore due to Dr. Ira Van Gieson, the former Director of the Pathological Institute, for his broad-mindedness and liberality in affording facilities for carrying on the investigation of the Hanna case.

The work of Parts I and III covers a period of eight years. Out of the material accumulated by Dr. Sidis and his collaborators, some experiments and observations of functional psychopathic cases have been utilized in the last part of this volume. Another portion of the work of Parts I and III has been accomplished in the Psychopathological Laboratory of the New York Infirmary for Women and Children, and sincere thanks are therefore due to the Trustees and especially to Dr. Alexander Lambert and Julia B. de Forest.

Thanks are also due to Dr. Walter B. Cannon, Assistant Professor in Physiology at Harvard Medical School, for reading the first three chapters of Part I, and especially to Dr. H. Linenthalf for his valuable assistance, given in the reading of the proofs of this volume.

BORIS SIDIS, *Brookline, Mass.*
S. P. GOODHART, *New York City.*

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PART I

PERSONALITY

By BORIS SIDIS

PART I

PERSONALITY

By Boris Sidis

CHAPTER I

INDIVIDUALITY

The question "What is an individual?" seems to be the easiest thing to answer. It is enough to point to some individual object as an example. The matter appears to be so simple. A closer examination reveals some difficulties. Suppose the individual object pointed out is a book. Do we not find that the book is made up of "individual" leaves, the leaves of individual sentences, the sentences of words, and the words of "individual" letters? Physically and chemically the book can be analyzed into masses of molecules, and the molecules in their turn can be further analyzed into infinity of "individual" atoms. The individual book, therefore, is made up of masses of subordinate "individuals." In what sense then is the book an "individual"? The leaves are connected, the chapters, the sentences, the words, and the letters are so interrelated that they form a whole,—a compound system of subordinate individual systems. The unity or individuality of the book is purely relative. The book as an individual object is a system of systems.

If from objects we turn to organisms, we obtain the same result. If we ask what is an individual organism, we find on examination that the individual pointed out, apparently one and indivisible as a unit, can be resolved into systems of organs, the organs into tissues, and the

tissues into individual cells. Modern biology goes even deeper and resolves the cell into complex structures and organizations, such as cytoplasm, cytolymph, cytoreticulum, microsomes, plastids, centrosomes and astrosphere, plasmosome or nucleolus, chromatin network, chromosomes, linin network, and so on. Recent research in biology makes more and more probable that the cells are built up of systems of simpler individuals. These individual elementary organic units are formed into complex systems giving rise to cells. The cells in their turn organized

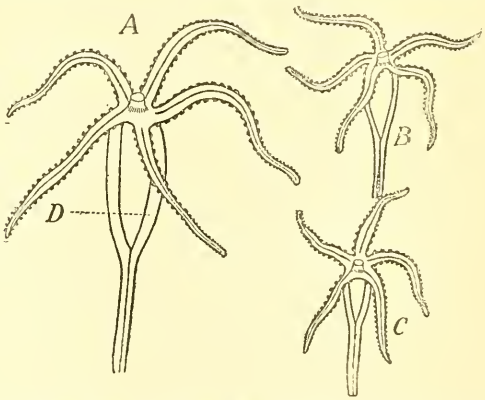

FIG. 1.—HYDRA FUSCA, a fresh-water polyp. (*A*), cut across at *D*; *B* and *C*, the two pieces which have become independent individuals. (After Verworn.)

into multiple systems form the unity of the individual organism. The individual, therefore, is never something simple and indivisible; it is only relatively an "individual." In reality, the individual is an aggregate of systems of simpler individuals.

The systemic structure of the organic individual is strikingly manifested in the lower animals. The *Hydra fusca* can be divided and subdivided, the portions becoming separate individuals leading an independent existence. (See Fig. 1.)

Similarly the *Eucorallium rubrum*, the precious coral, is an individual consisting of elementary coral polyps, each one capable of living its own individual life.

In the *Microgromia socialis* the cells are loosely connected, and each can lead its own independent individual life. (See Fig. 2.)

In the *Codonocladium umbellatum*, a colonial, flagellate protozoon, the same relation obtains; the portions,

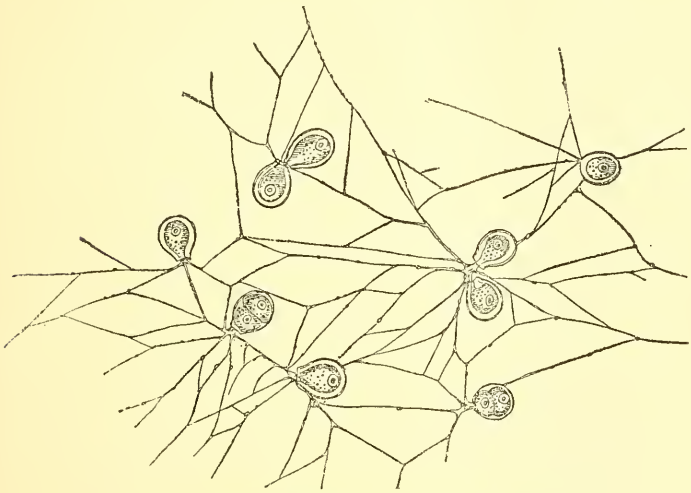

Fig. 2.—*Micogromia socialis.* (After R. Hertwig.)

when isolated, become independent individuals. (See Fig. 3.)

The *Eudorina elegans* is an infusorian belonging to the *Flagellata*. (See Fig. 4.) The individual organism of the infusorian consists of many subordinate individuals capable of an independent existence.

The *Siphonophore* is an apparently differentiated individual with many organs having different functions, such as movement, nutrition, reproduction. Now these organs are really single individuals arising by budding from the

FIG. 3.—*Codonocladium umbellatum.* (After R. Hertwig.)

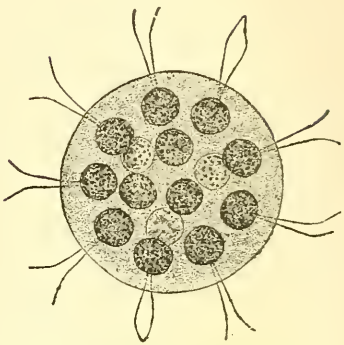

FIG. 4.—*Eudorina elegans.* (After Verworn.)

main stem, and when separated from the stem can lead an independent existence. (See Fig. 5.)

Even individual infusorian cells can be divided and subdivided, and the cut portions can in their turn become

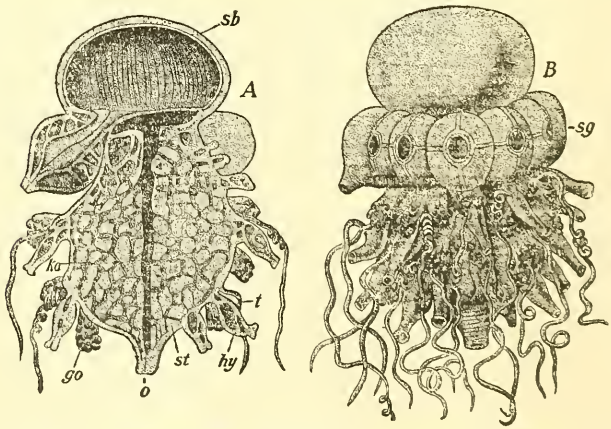

FIG. 5.—SIPHONOPHORE COLONY. *A*, longitudinal section: *B*, external view; *sb*, the float; *sg*, the swimming-bells, the nutritive, reproductive, and other "persons" beneath. (After Hœckel.)

independent beings with a life of their own. The *Stentor Roeselii* may be taken as an example. (See Fig. 6.)

Unicellular organisms can be subdivided into many pieces, and provided some portion of the nucleus is preserved in each piece, the fraction of the cell regenerates the individual and lives an independent active life characteristic of the parent cell.

These facts, along with others drawn from the internal structure, from the process of karyokinesis or cell-reproduc-

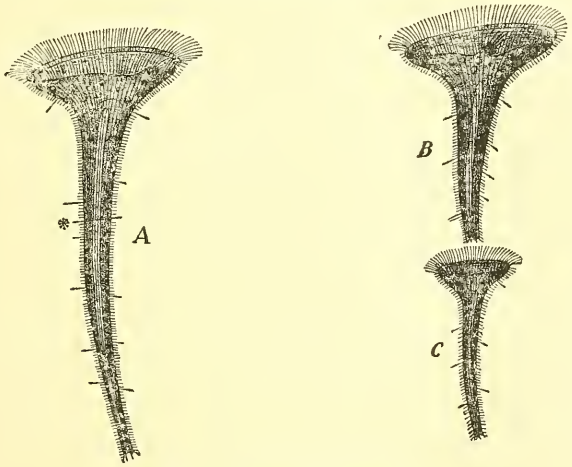

FIG. 6.—*Stentor Roeselii.*
A, cut across at *; *B* and *C*, two pieces which have become regenerated into complete Stentors. (After Verworn).

tion, and from the various processes going on in the internal morphology and chemistry of the cell during the different stages of cell-reproduction, pointing to the constancy and individuality of the chromosomes and their constituent granules,—all these facts and many others go to show that even so apparently simple an individual as a cell is really a compound system of many subordinate systems of relatively simpler individuals. The individual is a composite,—*a multiple individuality.*

CHAPTER II

MULTIPLE INDIVIDUALITY AND NEURON ORGANIZATION

The principle of multiple individuality underlies the organization of what may be regarded as the basis or counterpart of psychic life,—I mean the nervous system. The multiple systemic structure of neuron organization becomes more emphasized, more clearly defined as we ascend in the scale of evolution. The mode of neuron structure may be regarded as mirroring the mode of organization of psychic life. Although it may appear as a digression in a work on multiple personality to devote space to morphological structure of nerve elements, the reader is asked to bear in mind this important fact of intimate relationship of neuron and mental activity. One mirrors the other. The development of the various forms of neuron structure may be found to correspond or run parallel to the various modes of mental organization. It may, therefore, repay us to give a review of the modes and forms of neuron differentiation and neuron aggregation following the stages of organic evolution.

In the very lowest forms of animal life there is no nervous system. The neuron has not yet become differentiated, and the primitive cell possesses the fundamental characteristics which are afterward to develop in the highly differentiated functions of the neuron. In the monocellular organism, such as the *Amœba, Paramœcium, Gromia oviformis, Vorticella,* and others, there is present a sensitivity to external stimulations. Monocellular organisms react to touch, pressure, pricking, temperature, light, and chemical irritations. In the very lowest forms, sensitivity to all kinds

of stimuli is diffused and belongs to the protoplasm of the body cell as a whole. The tendency, however, is that the principles of physiological division of labor should work even in the lowest of cells, and without giving rise to any specially formed organs, certain parts of the protoplasm should become more sensitive to certain stimuli than others. In micro-organisms, in infusoria, for example, the pseudopodia or protoplasmic expansions manifest great sensitivity to touch, pricking, temperature, and chemical stimulations; especially is this the case when the protoplasmic expansions become permanent organizations of the animalcule, as, for instance, in the ciliated infusoria in which the cilia show great sensitivity to touch, pressure, and other stimulations.

The sensitivity shown by monocellular organisms to chemical stimuli may very well correspond to gustatory and olfactory sensations in higher forms, since these senses are of a chemical nature. In fact, we may say that such sensitivity is the germ out of which the senses of smell and taste are developed. Certain pigmented spots of the body of the monocellular organism may become more sensitive to light. Such conditions we find in the *Glenodinium polyphemus, Panophrys flavicans, Euglena viridis,* and others. These pigmented spots scattered over the body of the monocellular animalcule may be the germs, or, truer to say, the forerunners of the delicate structure of the eye with its highly differentiated function of sight. Of course we must remember the fact that the different organs formed in the higher forms of animal life do not actually come directly as a further development out of the particular spots of the lower micro-organism, but they are probably analogous in function. The structure, of course, is fundamentally different in metazoa from that of the protozoa, but the germs of the different functions are already found in the monocellular organisms. In monocellular organisms the organs are but portions of the cellular protoplasm. Such primitive organs or organoids

are to be found in the *Amœba proteus, Paramœcium caudatum, Vorticella,* and others.

In multicellular organisms the organs subserving the highly developed functions are represented by systems of cells, and even by many aggregates of cell-systems, which go to form one functioning interconnected organic whole, possibly being a sort of *syncytium,* having cell-bridges and protoplasmic continuity. It is in the multicellular organisms that the nervous system first takes its origin. When organic development reaches a certain height, a group of cells becomes differentiated into a nerve ganglion, spreading out its protoplasmic processes like a network over the organism, and thus supplying with its ramifications every portion of the body. As we ascend the animal series the ganglia become multiplied, groups of neurons increase, and their association and co-ordination increase in number and complexity. In the course of development the neurons, even as the cells of the body in general, become arranged into groups of higher and higher complexity. Groups are aggregated into systems, communities, clusters, and constellations. This holds true of the structure of the higher animals as well as of the general evolutionary series of animal organizations.

The nervous system appears at first in a disseminated inco-ordinated form, and becomes more co-ordinated as well as more complex with the ascent in the scale of evolution. In the lowest forms this co-ordination of ganglia is merely a matter of *repetition,* the interrelation of the nerve-centres is at a *minimum.* What is present is simply a *repetition* of many ganglia similar, if not identical, both as to structure and function. Co-ordination or concentration is almost absent, so much so that each portion with its ganglion may be completely excised without in the least interfering with the function of the rest. Differentiation of structure and function of the various ganglia is at its *minimum,* and corresponding with this lack of differen-

tiation is also the lack of co-ordination and integration of the ganglia centres.

A repetition of ganglia is all that is present in the most elementary forms of neuron organization, and only in the subsequent ascending series of animal life do the separate ganglia become co-ordinated, integrated, and differentiated into a true neuron organization. In this respect neuron organization follows the law of organization in general which proceeds from a repetition of organs with like structure and function to a multiplicity of highly differentiated organs unlike as to structure and function. The lower forms of plants have a repetition of the same organ. The same holds true of animal life, the lower organized forms of the animal series have similarly a repetition of like organs. A similar state we find in the history of the various forms of nervous systems. The lowest form of the nervous system is essentially one of repetition, while the principle of differentiation comes to the foreground in the higher types of animal life. In fact, repetition of organs is taken as a fundamental characteristic of a low stage of development. The structure of the nervous system is systemic or segmental in character. The complexity is at first purely *quantitative,* and only afterward becomes also *qualitative.* From complexity of like systems or segments the nervous system progresses to complexity of unlike systems or segments. The diversity of structure and function of the system or segment increases with the course of development.

CHAPTER III

TYPES OF NEURON ORGANIZATION

From this stand-point the types of the nervous system may be arranged into the following ascending series:

(I) The disseminated type.

(II) The systemic, or segmental type, which may be subdivided, according to form as well as degree of co-ordination, into the following subdivisions:

(*a*) The radial type.

(*b*) The bilatero-ventral type.

(*c*) The median-dorsal type.

In the Actinia the neurons are in a disseminated state. The neurons, as yet but little differentiated from the other cells, are found strewn in a more or less disconnected state under the ectoderm or outer layer of the animal. In the Planaria a similar structure is found.

In the Ascidian and others, the nervous system consists of a group of neurons, or of a single nerve-ganglion with protoplasmic processes radiating all over the body of the animal. Dendrons, axons, collaterals and the branches of terminal arborizations are distributed all over the organism, receiving impressions from the external and internal environments and reacting by muscular activity or glandular secretion. The same neuron receives its sensory impressions, and also sends out motor reactions in response to the stimulations,—that is, it is also motor—the neuron, therefore, is sensory motor in character.

In the *Medusæ,* such as the *Acalephæ,* there is a series of groups of neurons or of ganglia, but they are not interconnected. The groups are not organically connected by radi-

ating fibres, but their co-ordination is extremely simple, being rather synchronous in nature. (See Fig. 7.) Each ganglion, with its portion, acts by itself, and all work together, because they belong to the same general body system of the particular individual. The co-ordination is established through the general synchronous action of the body cells, otherwise the cells could not possibly co-operate. Should the portion with its ganglion be cut off, it would still go on functioning independently. The ganglia are neither functionally nor organically directly connected, but have a co-ordination of a purely synchronic order, and are like separate individuals working in unison and performing their functions at the same given time. In other words, in this stage the co-ordination is due not to internal unifying organizations, but to the mere fact of the synchronous rhythm in the physiological functions.

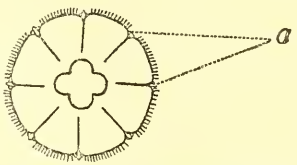

FIG. 7.—Diagram of the bell of *Aurelia Aurita* with eight sense-organs. (After Claus.)

In *Hydromedusæ* the interconnection of the nerve-centres is more organic in character. The groups of neurons or nerve-centres are connected by their protoplasmic processes and are organized into a double ring system. The upper ring consists of a layer of more or less sparsely strewn ganglia connected by delicate protoplasmic processes. The lower ring consists of more ganglia than the upper one. These ganglia are interconnected by more or less thick nerve-fibres. Both rings are brought into relations by nerve-fibres, thus giving rise to a further co-ordination of the two co-ordinated ring systems of neurons. From the ganglia of the two rings, fibres radiate in all directions, supplying every portion of the animal with sensory and motor fibres. (See Fig. 8.)

Similarly in the Radiata, such as the *Echinus,* or the

starfish, the nervous system consists of a series of ganglia co-ordinated into a central ring, localized round the mouth of the animal. This central ring of ganglia sends out nerve-fibres in different directions. Each arm is innervated by its closely situated ganglion or group of neurons. All the ganglia or groups are connected by radiating protoplasmic processes, thus establishing a co-ordination of all the groups of ganglia. (See Fig. 9.)

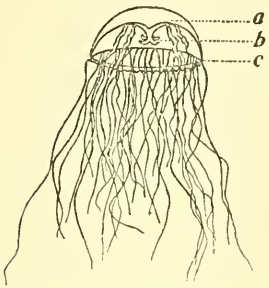

FIG. 8.—HYDROMEDUSA. *a*, umbrella; *b*, manubrium; *c*, margin of the swimming bell with nerve-ring.

In the Annelida, representing the bilatero-ventral type, we meet with a more complex structure of the nervous system. (See Fig. 10.) The ganglia instead of having a radial arrangement become organized in chains. The anterior or the central ganglion is the most massive, and is probably brought about by a coalescence of many minor ganglia. The rest of the ganglia are much smaller and form a longitudinal series which have a segmentation corresponding to the metameres of the body. The cerebral ganglion gives origin to the nerves of the sense-organs, the other ganglia supply the other organs, and also give rise to a visceral nervous system. Of the sensory organs present, there may be found an auditory vesicle, tactile organs, and a pair of eye-spots.

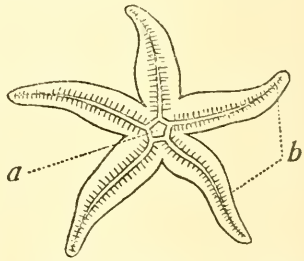

FIG. 9.—NERVOUS SYSTEM OF THE STARFISH. *a*, central nerve-ring that surrounds the mouth; *b*, peripheral nerves of the arms. (After J. Loeb.)

In the Annelida the segmental plan of structure stands

out clear and distinct. Each ganglion supplies and innervates its own segment. The individual is formed by associations of segments, and the nervous system consists of an aggregation of ganglia, largely preserving their individual independence. The differentiation of structure and function is at its *minimum*, the segments are practically similar as to constitution, and form so many repetitions of one and the same fundamental ganglion. In the Radiata the plan of repetition is radial, in the Annelids the plan is longitudinal, and as such it is far more restricted as to co-ordination.

In the lower animals, in the *Medusæ*, in the *Siphonophoræ*, the neurons and their ganglia are diffused without any plan and co-ordination; in the Radiata, such as the starfish, the neurons and their ganglia become organized on some general plan, but the plan is still diffused, the similar still undifferentiated ganglia become radially organized along *many* lines of repetitive co-ordina-

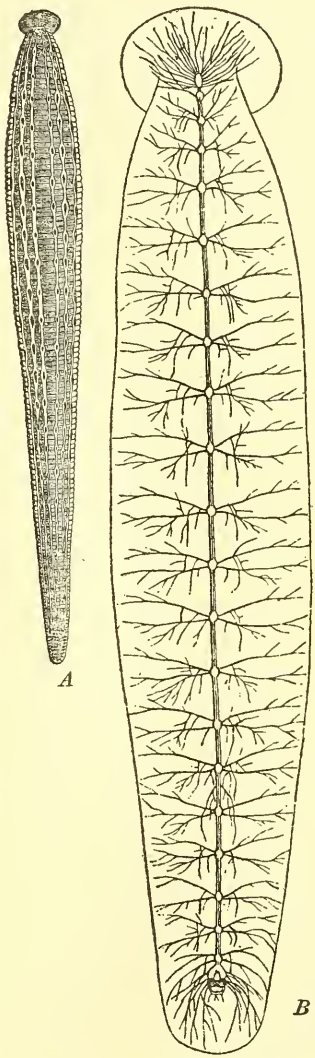

FIG. 10.—*A*, THE LEECH (*Hirudo medicin*). *B*, THE NERVOUS SYSTEM OF THE LEECH. (After J. Steiner.)

tion. The further advance of repetitive co-ordination is a restriction to two lines or even to *one* line, instead of many similar lines of development. In the lower forms of the Annelida, as well as the embryonic stages of the higher forms, two similar chains of ganglia run parallel to each other, and only in the adults of the more advanced forms do we find that the two parallel chains become integrated into one series. *The course of evolution is to a greater integration of similarly functioning ganglia.*

In the *Molluscoidea,* which probably descend from a common form with the Annelids, the nervous system is extremely simple, consisting of one ganglion or group of neurons, sending off their protoplasmic processes to various portions of the organism. In the *Bryozoa,* usually united to form colonies, the nervous system consists of one œsophageal ganglion placed between the mouth and the arms. In the *Laphopoda* this ganglion is contained in the concavity of the *laphophore,* the disk bearing tentacles on which the mouth is placed, and supplies the tentacles and œsophagus with numerous nerves.

When many individuals go to form a colony or a composite individual, a more or less co-ordinating colonial nervous system is found to take rise.

If from the Annelida, we pass to the Arthropoda we find the same fundamental type preserved. There is one supra-œsophageal ganglion that constitutes the brain and a sub-œsophageal ganglion and ganglionic chain, or ventral nerve cord. With the rise in the scale of evolution of the Arthropoda the cerebral ganglia become more massive and more complex and give rise to bundles of nerves innervating the different sense-organs which become finer and more complex in structure and function. The subœsophageal ganglion with the chain of ventral ganglia undergo a similar change: they grow and develop quantitatively as well as qualitatively; they become more massive, more complex, more integrated, and more differentiated. Thus in *Limu-*

lus polyphemus, one of the oldest representatives of the Arthropoda, the nervous system consists of a dorsal or

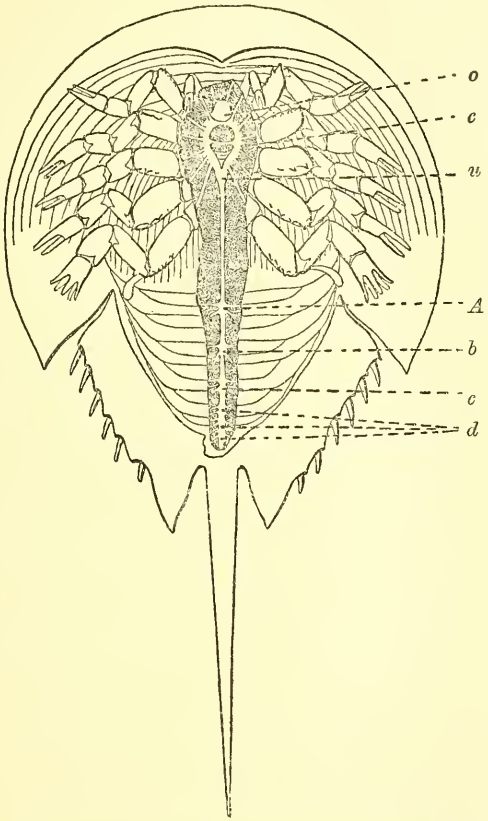

FIG. 11.—NERVOUS SYSTEM OF *Limulus polyphemus.* *o*, Supraœsophageal ganglion; *c*, commisure; *u*, subœsophageal ganglion. *A*, *b*, *c*, *d*, abdominal ganglia. (After J. Loeb.)

supraœsophageal ganglion, a commissure and subœsophageal ganglion, with a chain of six small abdominal or ventral ganglia.

The nervous system of the *Limulus* is highly segmental

in character. (See Fig. 11.) Each peripheral organ belonging to a segment of the body has its corresponding segment in the nervous system. This is well brought out in one of the experiments made by Professor Loeb. The whole nervous system was removed in a *Limulus* with the exception of a small portion of the left side of the commissure and the six ventral ganglia. No connection was left between the two portions, still the *Limulus* went on living; it had to be artificially fed. These ventral ganglia are indispensable, since they innervate the gills requisite in the respiration of the animal. The portion of the commissure left was also necessary, because some of the leg movements were requisite in the reception of food. The animal in such a state received the food and nourished itself like a normal individual. So independent are the groups of neurons, that Patten has demonstrated that in a *Limulus* each leg receives food in a normal way, when nothing else is left in the process of operation except the portion that directly innervates the leg.

In the crab the dorsal or brain ganglia are little developed; the ventral ganglia are, however, far more massive and better developed.

In the house-fly the dorsal ganglion is comparatively massive, and so are also some of the ventral ganglia. (See Fig. 12.)

In the honey-bee the dorsal ganglion, or the brain, is very massive and highly developed, and so are also the ventral ganglia. (See Fig. 13.) This is brought out clearly, when we compare the nervous system of the honey-bee with that of the house-fly.

If the fly is deprived of its brain, or of the dorsal ganglion, spontaneous movements disappear, the fly remains in the same position, never moving unless acted upon by an external stimulus. If one of the legs is tickled, it will respond by contraction, while the others will remain quiet; only when the stimulus becomes very intense, only then,

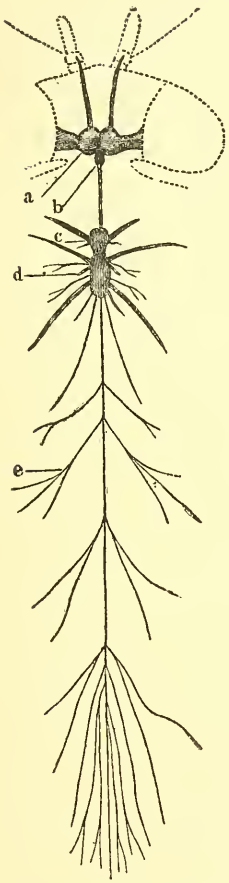

Fig. 12.—Nervous System of House-Fly (*Musca vomitoria*). *a*, dorsal ganglion; *b*, subœsophageal ganglion; *c*, *d*, ganglia.
(After J. Steiner.)

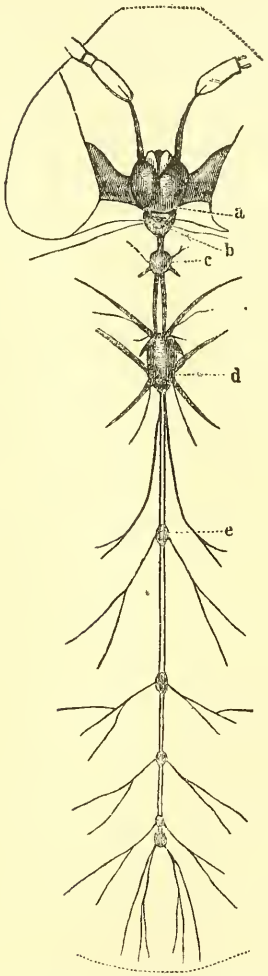

Fig. 13.—Nervous System of the Honey-Bee (*Apis mellifica*). *a*, dorsal ganglion; *b*, subœsophageal ganglion; *c*, *d*, *e*, rest of ganglia.
(After J. Steiner.)

do all the legs respond and the body shifts its position. If the wings are left, then the brainless fly may even make flying movements. If now the abdomen is cut off, leaving only the middle portion, the peripheral organs are found to respond to stimuli, and even for quite a long time after the operation has been performed, clearly demonstrating the organic independence of the ganglia. More striking, however, is the following experiment: The abdomen of the fly is cut clear off the body, leaving the middle and anterior portions, care being taken that the wings should not be injured. The fly will immediately be on the wing in the most unconcerned manner. Bethe made a similar experiment on the bee; he cut off its abdomen and the bee went on feeding, as if nothing had happened.

Experiments demonstrating the functional independence of the different ganglia innervating the corresponding segments can be performed in all Arthropoda in which the segmentation is well emphasized. Segments of an operated individual, when thrown together, are from mutual stimulation seen struggling with each other like separate individuals. The experiment is very striking in showing the functional independence of the segments. Being functionally independent, the only bond that can keep the segments together is that of an actual physical union. The groups of neurons become physically connected by means of ingrowing protoplasmic processes. Such, in fact, is the condition that has been found by recent research in the nervous system of the lower forms of animal life, and to a certain extent in the lower ganglia of the higher forms.

Whitman has shown that the entire nervous system of Annelids may be regarded as a series of brains, and that normally a pair of these nerve-centres or brains belongs to each segment. The vertebrate as well as the human brain is also a complex system; it is made up of segments, of many brains.

In the Vertebrates representing the median-dorsal type the aggregates of neuron systems are fused and highly complex. The nervous system of Vertebrates may be regarded as an organization of many segments, of many individual brain systems; it only differs from the lower types by the greater aggregation, co-operation, and differentiation of its constituent parts. The systemic or segmental structure of the vertebrate nervous system can be well demonstrated in cold-blooded animals, such, for instance, as the frog, but it can also be proven in warm-blooded animals, such as the dove or the dog. The spinal cord, the medulla, and the cerebral ganglia represent aggregations of complex systems of many segments, many individual brains organically interconnected.

CHAPTER IV

THE LAW OF INDIVIDUALITY AND EVOLUTION

If we examine more closely the representatives of the lower forms of organic life, we find that the development consists in a mere multiplication of similar parts; in other words, organic evolution in the lower stages of life is purely quantitative in nature; it is only in the higher forms that the ganglia become differentiated both as to structure and function, and their organization becomes qualitative in character.

In the lower forms the function of each ganglion does not differ in nature from those of the other ganglia in the chain. The functioning activity of the organism is not a synthesis of differentiated, intimately interrelated and functionally dependent ganglia, but simply a conglomeration of ganglia whose only union is their spatial interconnection, and whose only relationship is a sum of many similar actions occurring simultaneously. Proximity in space and functional simultaneity in time constitute the only bonds of union.

Since the ganglia are in reality functionally independent, in order to insure simultaneity of function, the bond is an organic one. The neurons of the different ganglia become organically connected—in other words, they become *concrescent.* Thus the findings of Apathy, Bethe, and others have shown concrescence of neurons in the lower forms of life, such as the leech, for instance, as well as in the lower ganglionic structures of the higher forms of life.

It is only when we reach the higher and more complex

stages of life that we leave the level of *quantitative* relations and enter that of *qualitative* interrelations. In the higher forms of life the ganglia become so differentiated and interrelated that they cannot work without the co-operation of other ganglia.

A similar state we find in the stages of social grouping. The individual in the primitive community is practically independent and economically self-sufficient. What binds him to his small village community is intimate organic ties, blood-relationship. The same holds true of the community. What connects the small communities as belonging to the tribe, to the nation, is once more organic blood-relationship. It is only when society becomes more diversified in structure, when the division of labor and differentiation of occupation and profession increase, when the individual becomes so economically dependent that his food supply, the satisfaction of his requirements and his functioning life activity are impossible without social co-operation, it is only then that the individual becomes freed from the bondage of blood-relationship. In other words, with the growth and development of social organization *organic* bondage is replaced by *functional* relationship.

The same law holds good of organic evolution. In the lower stages of organic life nothing short of actual structural relationship and organic interconnection can insure co-operation into a whole of the similarly functioning and really independent ganglia. If one arm of the starfish is cut off with its corresponding ganglion, the arm reacts and functions like a complete healthy starfish. The same is true of the Echinus. The Nereis, and even the leech may be regarded as a fair illustration of our point of view. The leech we know consists of a dorsal, or what may be termed cerebral ganglion, and of an œsophageal ganglion with a series of ganglia arranged in a chain. Now it is found that the different portions when cut off the main body behave like the complete individual leech. The ad-

justments and adaptations of the separated portions of the leech are found not to differ from those observed in the healthy individual of the species. In the rainworm and in the individuals of other species of the Annelids we meet with similar conditions. *Segments act like complete individuals.* The complete individual is really nothing but a composite of many segments which may, in a certain sense, be regarded as inferior, but still more or less independent individuals. The organic unity of the complete healthy individual is brought about by structural relationship, by the actual concrescence of the many independent inferior ganglia or segment-individualities.

The concrescence of inferior individualities or of ganglia is all the more possible, nay, even inevitable, because the conditions to which the individual reacts are uniform and simple. The requisite mode of reaction or of function is simple, unvaried, and unmodified, a condition also found to be true of the lower forms of consciousness.

With the advance of organic evolution the ganglia become more integrated, and at the same time more qualitatively differentiated. Each ganglion or system of neurons assumes a different position and a definite stage of the function as a whole. This very differentiation or qualitative development makes it impossible for separate neurons or ganglia to manifest their activity, unless they participate in one systemic whole; in other words, they always function in aggregates. The bond that keeps neurons and ganglia is not any more of a purely external character, but it is of an internal nature, it is one of functional life activity. In the higher forms of life the interrelation of neuron-systems, especially in those belonging to the most complex and most highly developed aggregates, is entirely of a functional nature. There is no actual structural connection, no organic bond except that of function. This functional bond is all the more necessary, as with the ascent of organic evolution adaptations to external environment become more and more

complex and varied, the same elements and groups being requisite to enter into functional relations with various aggregates. The diversity of functional life activity is conditioned by the independence and freedom of individual elements and aggregates.

In the lower stages of mental evolution, where social life is more or less simple, uniform, and there is little more to communicate beyond some simple incidents occurring in life, a whole narrative can be incorporated in one visual symbol, such as picture-writing or hieroglyphics. With the advance of culture and development of mental life, sentences, phrases, and finally syllables become independently represented by different symbols, which enter into functional relations with one another, such as the syllabic writing of Babylonic civilization. The rise of civilization and the rapid growth of mental activity in all its phases bring about such a wealth of mental products that the former modes of symbolic representation in whole blocks become too rigid. The last bonds have to be broken, the individual symbolic elements become liberated, become free and independent. The economy in symbols is most marvellous. With some twenty-four or twenty-five symbols the infinite wealth of thought can be easily represented, and the ease with which it can be effected is almost miraculous. The individual elemental symbols are no longer indissolubly combined; their relations become purely functional in character. The independence of the individual element brings about the great ease and elasticity of combinations and the possibility of infinite progress in the representation of newly formed mental relations.

The law of economy reigns supreme not only in social development, but also in organic evolution. The lower an organization is, the more organic, the more fixed are the relations of the elementary individual neurons and their groups; the higher an organization is, the more scope is

given to smaller and more restricted aggregates of neurons; and finally in the highest spheres of the highest organic forms the individual element, the neuron, attains complete independence and obtains full freedom in entering as an element into any neuron aggregate. The economy is here of the utmost importance. The possible groupings, permutations, and combinations by means of associations and dissociations of individual elements and their groups are incalculable, and progress is practically infinite. From structural to functional relationship, from organic bondage to individual freedom of the whole scale of organizations, from the lowest to the highest, from the simplest medusa to the highest state of society,—this is the law of evolution. We may say that this law of evolution has not only a biological, but also a psychological, sociological, and even an ethical significance. *The general tendency of evolution is from structure to function, from bondage to freedom of the individual elements.*

CHAPTER V

EVOLUTIONARY STAGES OF PSYCHIC ELEMENTS

A PSYCHOLOGICAL analysis reveals to us the fact that psychic elements constituting the sensory compounds are of such a stable character in the nature of their combinations that dissociation is wellnigh impossible. The union of sensory elements with other sensory presentative groups and compounds is not free in its character. The psychic elements in these elementary psychic compounds are indissolubly bound. Sensory presentative elements enter into what may be figuratively termed chemical union, the elements being so intimately interrelated and interconnected as to give rise to a psychic tissue in which they are structurally integrated, forming a continuous organic unity. The psychic elements of the sensory presentative compound are, so to say, grown into one organic whole, and no dissociation can possibly be effected without injuring the constituent ingredients of the organic psychic compound. A sensation of red, of sweet, or of pain, is in reality a compound of many psychic elements, but their combination is so stable, firm, and indissoluble that the elements cannot be freed from their union, and their joint organic activity becomes revealed in the moment-consciousness as one continuous unanalyzable unity. It is only by inference that the elements of the sensory compound can be separated; they can be postulated, but are not given directly in experience. Sensory compounds cannot be decomposed. As soon as a sensory element is brought into activity at all, it must work in a group of which it is an organic constituent. The isolation of sensory elements from their compound groups is im-

possible, because it is death of the element itself. The life-being of the sensory element is in its groups; apart from the group the element cannot exist. In other words, it is always definite groups of sensory elements which act as a whole, never isolated elements. The sensory elements are so organically connected, so firmly integrated that they admit of no variation in their interrelations; no transpositions, no shiftings of the elements are possible. The elements of the sensory presentative compound have definite relations which admit of no change. The group of interrelated sensory presentative elements is given fixed and ready-made.

In passing to presentative and secondary presentative combinations or peceptual systems in which the sensory compounds enter as constituents, we find that the elementary secondary compounds, though otherwise firmly integrated, still admit of variation. The integration of the groups, and especially of the secondary presentative groups, is not of that unmodifiable organic character. Around a nucleus formed by a group or combination of groups of primary elements, groups of secondary sense-elements become aggregated, and the total aggregate gives rise to a consolidated and unified system of groups, resulting in a percept. In perceiving the chair yonder only the visual sensations constitute the true sensory groups that form the nucleus of the percept. The other psychic groups that are crystallized round the percept, such as the weight, the resistance, the volume, the size, shape, and distance, are really visuo-tacto-muscular groups; they are largely tacto-muscular groups tinged by the sensory quality of the nucleus; they are tacto-motor groups, sensorially visualized, seen indirectly. Though these secondary sensory groups are firmly integrated, still their integration is not of such a character as not to become disintegrated and rearranged into new systems of groups. Such a disintegration is no doubt effected with difficulty, but it is by no means impos-

sible. The perceptual compounds, unlike the sensory ones, admit of decomposition into elementary primary and secondary sensory groups. The component elementary sensory groups can be experienced separately under different conditions and circumstances. We can close our eyes and walk up to the object of perception, say the chair, and thus experience the free muscular sensations of distance, or we may push our hand against the chair and experience the sensations of resistance, or take the chair in the hand and experience the muscular sensations of weight and shape. The primary and secondary sensory groups, in short, going to make up the percept can be isolated by withdrawing the organizing nuclear group of primary sensations, thus bringing about a disintegration of the particular aggregate.

If we inspect more closely this process of isolation, we find that the constituent secondary sensory groups are not really isolated, so as to stand out all by themselves. What actually happens in this seeming process of isolation is simply the formation of a series of new perceptual aggregates, in which the particular sensory groups that are isolated and specially brought out become the nuclei, the foci. For in the perceptual aggregate it is always the character of the nucleus that is specially brought out, and it is the nuclear sensory aggregate that tinges with its sensory color all the other aggregates. To revert to our previous example, to the percept chair. In passing the finger over the chair, the touch may form the nucleus of the moment, and may stand out, on that account, more clearly in consciousness, but around this primary nuclear sensory group other secondary sensory groups, such as thermal and muscular sensory elements, become organized to form the synthesis of the perceptual moment. If we try to find out the shape of the chair by a series of touches, we really form a series of percepts, the sensory nuclei of which are not visual, but tacto-muscular in their nature. A sensory group, then,

cannot in reality appear in a purely isolated form. It can only appear as a nucleus around which other sensory groups are organized.

To the highly developed type of moment-consciousness[1] a sensory group always appears embedded in a more or less plastic material of secondary sensory groups. A sensory group tends to become a nucleus of a perceptual aggregate. A prick is localized on a definite point of the skin, and is felt as coming from a hard, resistant, sharpened object. Sensory groups come in aggregates. Dissolved out from union in one aggregate, the sensory group becomes liberated, but only immediately to enter into combination with another aggregate. If we designate primary sensory groups by capitals and secondary sensory groups by small letters, then *a B c d* may represent a percept in which B is the nucleus; a_1 b_1 *C* d_1 another percept where C is most prominent, a_2 b_2 c_2 *D* another percept in which D is most prominent, and constitutes the nuclear sensory group. With the formation of each new percept the particular sensory group which has become the focus or the nucleus stands out most clearly, and hence may be regarded as isolated. In reality, however, not only is isolation absent, but the emphasized sensory group itself becomes changed in character. The sensory group appears as a nucleus, as a component of a new psychic aggregate, and from being a secondary sensory group it becomes a primary sensory group. One thing, however, is clear, that the sensory groups appear in different compounds, and though never entirely free, may still be regarded as capable of relative isolation by forming constituents of different compounds. The liberation of the sensory group from the perceptual aggregate can be effected in an indirect way. The primary and secondary groups may be shifted, but

[1] See Sidis, Psychology of Suggestion. This will be developed in Principles of Psychology and Psychopathology.

shifted with great difficulty. The groups of the percept are *bound* in the total aggregate, but, unlike the elements in the sensory group, they are *not fixed* in an indissoluble union.

At the same time we must point out the important fact that the secondary sensory elements, the chief characteristic of the percept, differ from primary sensory elements in being more intimately associated with elements representative in character. This fact is excellently well brought out in illusions. When one is in fear on a dark night, in the depths of a forest, he is apt to take every tree for a robber. When one's mind is full with the thought of a certain object, he is apt to mistake things for it; he is apt to see that object in things that have not the least similitude to it; one may take floating sea-weed for a sea-serpent, and the outline of a post for the figure of a man, and even of a special well-known friend whom one has expected for some time. In lines so drawn as to admit of different systemic combinations, such, for instance, as Helmholtz's figures, one can see whichever arrangement he wants, according to his previous representations. In looking at the outlines of clouds, or at the irregular configuration of ink-blots one can see different figures of objects, according to the representations and images that freely and accidentally rise before the mind. In a certain sense we may say that perception is sensory representation. Perception may be regarded as the intermediate stage between sensation and representation. The perceptive process is on the way to become representative, and the percept may be partly regarded as unloosened sensation, but still bound representation. *Fusion* is specially characteristic of the interrelation of groups of percepts.

Turning now to representation, we find that the constituent elements are *free* in their interrelations. The connection among the representative elements is no longer one of *compound,* characteristic of primary sensory elements,

or of *fusion,* characteristic of secondary sensory elements. The relation is of such a nature as to be highly unstable and easily dissociated as soon as association is formed. The constituent representative elements do not lose their individuality in the aggregate into which they enter, as the primary sensory elements do in sensation, or both the primary and the secondary do in perception. In representation the constituent elements, though forming an association, still stand out clear and distinct as independent elements.

Representative elements can be shifted with great ease, giving rise to all forms of combinations, combinations of which neither primary nor secondary elements or groups can possibly permit. In experiencing a sensation of red of a particular shade of saturation and intensity, the sensory elements present are fixed and given in definite relations; in perceptions the experience of a percept, say of a table, is also definitely given; the particular individual percept experienced has definite fixed elements and relations as soon as it is perceived at all. The horse in perception has definite relations, the table, the chair, the lamp, the house, present in perception, have definite, more or less fixed relations which admit of no change. We cannot see a horse with its tail on its forehead and ears on its back, the chair has no wings to fly with, nor has the table a tongue for speech. The elements and relations in perception are fixed. Not so is it in representation. In representation the horse may have its mane on the back and tail in front, the ass may preach or prophesy, the chair and table may have tongues and carry on conversations. What cannot be done in representation? The very foundation of the universe may be removed and another world with new relations may be created.

In representation, in imagination, impossible forms of metamorphoses may be effected; the most marvellous

deeds may be accomplished, miracles may be enacted, the life of Arabian Nights may be passed through, and we may be transported into wonderland with the greatest ease. In representation, time, space, and conditions are annihilated, and the impossible becomes a reality. In other words, representative elements, unlike sensory elements, do not form fixed unalterable relations; they possess a high plasticity in their relationships; they are independent, and enter into free associations in which the relations as well as the elements can shift and change with the utmost ease and facility. While the sensory elements are firmly held in *compounds* and the perceptual elements are in a state of *fusion,* the representative elements attain their *independence* and *freedom.*

We are here confronted by the same law characteristic of evolution in general. The course of psychic evolution runs parallel to that of organic evolution, such as we have found in the growth and development of neuron systems or of social states and products and even of ethical relations—namely, the substitution of functional relations for structural relations. The tendency of psychic evolution, as it is of evolution in general, is *from structure to function, from bondage to freedom of the individual elements.*

CHAPTER VI

THE ATTRIBUTES OF PSYCHIC ELEMENTS

We must point out the fundamental difference between representative and sensory elements, both primary and secondary. A representation is not made up of sensory elements. To reduce an image, an idea to sensations is untrue to fact. The idea of a color has no hue, the idea of a tone does not sound, nor is there any flavor to an idea of taste. An idea of intense pain does not ache, in fact it may be pleasant; the idea of an intense light is hardly painful to the eyes, and the idea of a jarring sound is hardly shocking to the ear.

Sensory elements may pass through all degrees of intensity. Starting with the *minimum* visible, or *minimum* audible, for example, we can advance along a series of increased intensities, finally reaching a *maximum*. This attribute of intensity is specially characteristic of sensory elements. A sound may be high or low, a blow may be strong or weak, a light may be dark or bright, a toothache may be intense, but an idea of the same sensation is neither high, nor low, nor strong, nor weak, nor dark, nor bright, nor intense. Representative elements lack intensity, the essential attribute of sensory elements. Sensory elements, on the other hand, lack the attributes characteristic of representative elements,—namely, vividness. The idea or representation of an intense sensation may be very vague, while the idea of a weak sensation may be very vivid.

Representative elements differ from the primary and secondary sensory elements not only by the attribute of

vividness, but also by another important characteristic,—namely, *recognition*. A representative element is not only cognitive, but recognitive. Presentative sensory elements, primary and secondary, have direct reference to the object, to the relations of the external environment. The reference of representative elements to external relations is essentially of an indirect character. In other words, sensory elements, whether primary or secondary, have *immediate* cognition, while representative elements have *mediate* cognition, or recognition. I see the book on my table; I close my eyes and represent it to myself over again. I look out of the window and see a house, a horse and carriage near by; I close my eyes and represent the whole scene over again. It is usually stated that the representation is a copy of the original experience of the presentation. Evidently, the representation is regarded as not being the same as the presentation, just as a copy is not the same as the original. Representative elements have the function of *cognizing again*, the function of *recognition*. In representation experiences are lived over again without the actual recurrence of those experiences.

In order that a copy, a representation, be a true copy of its original, it must be cognized as a copy,—that is, it must be cognized as something already cognized; in other words, it must be *recognized*. The image, representation, or idea of a table is not itself a table, nor is it a sensory compound referring to the object table, it is rather a psychic state referring to the sensory compound on its objective aspect. The representation does not refer directly to the table, as it is in the case of the percept, but to the table as perceived. The image, or representation, refers not to the object immediately, but mediately, to the object as object of the sensory compound, to the percept. Hence the object is cognized over in representation; in other words, it is *recognized*.

Recognition is either of a general or of a specific character; thus in the idea "man," along with its content, there is also recognition in a general way; the idea "man" refers to man in general, the content not referring to any particular individual. The representation, however, I have of my friend John refers to John specifically. In the immediate perception itself there is no recognition present. In the direct perception of the object "horse," we are hardly justified of speaking of recognition. In the mere perception of the horse we do not recognize it as a horse. The fact that we perceive the object as it is, depends entirely on the nature of the sensory compound which gives the sense of reality; that the object is identified as belonging to a certain class is due to simultaneous association involving the functions of representative elements,—namely, recognition. *In the perception itself there is cognition, but no recognition.*

There is, however, recognition present, whenever the percept is associated with representative elements. When, for instance, on seeing a horse, I recognize it as my friend's horse, representations of my friend's horse pass through my mind, giving rise to specific recognition. On perceiving an object, and identifying it or recognizing it first as a huge beast and afterward as an elephant, representative elements with their function of recognition are once more present, giving rise to general recognition, the object being identified and classified in the process of recognition not as any specific experience that can be localized under definite conditions. The process of recognition may pass from the general to the more specific, and in the course of the process of association with representative elements the object attains a more and more specific determination.

The characteristics of the sensory elements are organic *cohesion* and *intensity;* the main traits of the representative elements are *vividness, recognition* and *functional independence. Cognition is characteristic of the sensory and*

recognition of the representative elements. Various combinations of psychic elements may give rise to various states of intermediary degrees, ranging from the most intense cohesion of sensory compounds to the most vivid independence of representations.

CHAPTER VII

REPRESENTATIONS AND THE BREAK-UP OF PERSONALITY

We have pointed out that recognition is specially characteristic of representative elements as against cognition of sensory elements. Let us inspect the matter somewhat more closely. What does recognition imply? When we meet a friend of ours whom we have not seen for years, and it takes us time to recognize him; when we meet an acquaintance to whom we have been but recently introduced, and we have a hard struggle to identify him; when we hear a fairy story and recognize the old scenes of fairy-land we had wandered through in the dusk of the evening; when we read a book hastily glanced through before and have a faint recognition of the content as the argument now clearly unfolds before our view, do we not under all these circumstances recall something that has gone by? Does not re-cognition really mean *re*call, re-membrance? Recognition then implies memory. Representation involves recollection, revival, recall, and along with vividness and functional relationship constitute the main characteristics of representative elements.

What happens now when the process of degeneration sets into the domain of representative life? The functional side of relationship is affected. It means some form of functional dissociation. Vividness and recognition or recall are equally involved, both become weakened and vague in proportion to the extent and depth of the process of degeneration. Ordinarily all the three aspects are equally affected, and along with functional dissociation

vividness and recall are greatly reduced. There are, however, cases which seem to show that vividness may be affected along with functional relationship of the representative elements, but that recognition or recall may remain clear and distinct. This peculiar affection of representative life will give rise to the formation of double or multiple personality, although *memory may be fully present* and fade away gradually. Under such conditions the patient feels that the portions of his life thus affected are strange to him; they appear as if they belong to another man's life, notwithstanding the testimony of memory to the contrary. The patient regards these dissociated tracts of his being as one does anæsthetic portions of his body. One may see them as belonging to one's body, but does not directly feel them as his own. Such dissociated fields of consciousness, not brightened by the vivid light of mental activity, are really outside the range of one's own personality and appear to belong to the life-existence of another person. The following account sent to me may serve as a good illustration:

"Now that a year and a half has passed, I may tell you my experience. Then, it was such a very personal matter that I kept it to myself.

I woke to find that eighteen months had passed since I fell asleep. That year and a half was blank. I could vividly remember my life from very infancy, but the experiences of those eighteen months were not a part of it.

I could remember what I had done during this period in somewhat the way we remember the daily doings of an acquaintance, though far less vividly, and it seemed it was not *me*, though I know full well it was. This was sufficient to enable me to keep my engagements, and so my acquaintances, though noticing a change in me, did not know what had happened.

Really my *mental* life in the two phases of personality

is as different as day and night, but the habits, being well organized, persist through both, and the habits are the most noticed characteristics of those we know except in the case of some few intimate friends.

The change or waking occurred not quickly, but gradually. I was sitting by my window reading—as it happened—something of Herbert Spencer's. Something there touched a chord that had ceased to vibrate over a year before. One point in the chain of my past experience found, all was quickly regained.

Looking out of the window things seemed real—as I compared the view out of the window with what it was a minute before. It was a real living view to be seen with the eyes where there was a *flat, faded,* uninteresting *picture.*

The great, great world opened up before me, not to the ocular vision tone, but to the mental eye. Again I felt the thrill of living awaken those chords of sympathy that bind each thing that is with all that is, has been, or is to be.

During that day and the next, I made a great many observations, comparing the two phases of personality—the strong and the weak, as I will call them.

Alas! I woke to fall asleep again. I hope, I pray, there is a waking, for one day of life is worth more than a year of sleep.

It was only a few days later, I don't know exactly how long, when going back into precisely the same environment, routine habit in its favor, the *weaker* proved the stronger, and *pulled* me, *dragged* me back.

For a few months the personality was very unstable, changing phase slightly from day to day. It finally settled down, but is a very weak personality. I go on without much interest in the world, able to make a living, but having few joys and few sorrows, a dull, dull life. The past forgotten, almost as fast as passed, little thought of the future, and little of the great world about me. I know it

is a *great* world, because I once could *see,* but that now to me is less than another's testimony.

As a boy I went to school very little, but read much; I read because there was something in books I wanted to get at. I took especial delight in scientific study. Except the writing of a few scientific thinkers I never read a book through from cover to cover, but searched through it for the particular mental food I was in need of. What I read I sifted into two parts: the bulkiest, useless to me, I slung away; the substance of the other was bound up in my mental growth, and became a part of me, *never* to be *lost* or *forgotten.* Oh, where now? My books were my companions.

Having saved a little money for the purpose, I quit work three years ago and entered high school. Decided to study Latin, and found it difficult. Not being accustomed to give up what I had undertaken, I determined to conquer it. As it became more difficult, my determination became one fixed idea to which everything else was sacrificed.

The studies I loved and all of my pleasures were given up.

In eighteen months I had exhausted myself mentally. As I had felt my powers failing, life had been one living torment. Happy for me, each day was forgotten as it passed.

From sheer exhaustion *I gave up the fight.* From that moment a load was off my mind. I felt stronger.

It was a few days after this, a Friday or a Saturday, I think, I had the experience I have related. It was going back into the same school-room that brought me back.

During the remaining two months of school I read other things during study time, and studied none of my lessons, but found I could recite and stand my exams. far better than before. One exception, I spent three hours a week at Latin with my teacher.

During these two months everyone thought me very original, but the fact is, every original thought I expressed during those two months had its birth and growth to maturity in those two days previous, and the thought, being put into word form was carried over the gulf that separates the two periods.

I could not remember in itself that period of the strong personality, I could not call to mind its feelings and aspirations, but I could remember its *thoughts*, because they seemed to have been stereotyped into word (language) form. Language seemed to be the intermediate link that connected the two phases. Throughout the two months the thought of those two days seemed to have made a far deeper impression on memory than anything else, and, except as counted by days and hours, those two days were a longer period of time than the previous eighteen months.

A few days or weeks, I don't remember now, though I can look it up, after my experience of the strong personality, feeling that it was fast fading from memory, I wrote an account of it, some sixty pages, taking great care to make it accurate. Unfortunately, that record has been destroyed. I have no direct memory of the period of strong personality now, and all I may say about it is based on my memory of that record.

It was written between midnight and three o'clock, and I got up from bed to write it. I had previously come to the conclusion it must be consigned to writing for fear of my death, as I believed it might be of value to someone. When I found it fast fading from memory, and realized that when it was forgotten I should cease to endeavor to let the prisoner out and he should lie unconscious in his prison till its threescore and ten were out, and then cease to exist without having known of his own existence, except for the period of his first score of years. It was this thought that took me out of bed at midnight to record the experience, for I thought even if it were forgotten, if I

had it recorded in my own handwriting, I should know something of the prisoner, and though having no personal interest in him, should do something to set him free.

At the end of the school-year I graduated, Latin not excepted, and then began work at a trade, and in that change of environment have almost forgotten my two years of school-life, which shows what a weak personality I have now. However, I have done better than I once expected, for I have made a living, and am giving satisfaction to my employers, have been advanced, and have good promise of further advancement.

In the weak phase it is characteristic that thought and language are inseparable. It is impossible to think faster than speak (or speak mentally). In the strong, vigorous thought is so independent of words or verbal representation that I can think ten or even twenty times as fast as I can speak. In the weak, I think in images of words; in the strong, I think in images of *things*.

In both phases of personality life is made up of seeing and doing, and what I do is adapted and directed by what I see, but there is this vast difference: in the one, the connective link is only habit, in the other it is a vast network of thought and feeling that constitutes mental life.

In the weak I may speak of ' what I believe ' just as I do in the strong, forgetting that it is of no importance what I believe about most things, as it has no part in directing my conduct, that being really (however I may deceive myself) controlled by habit. In the strong, previous to every act throughout the day, is a long but quick train of thought which determined it, and this train of thought is controlled by my beliefs.''

Ordinarily, however, both vividness and memory are affected, and this is especially true in severe cases of dissociation. Since loss of memory is the most obvious and striking pathological manifestation, it is natural that the latter alone should become the index of the severity of the

extent and depth of the mental lesion. The breaks and gaps in the continuity of personal consciousness are gauged by loss of memory. Mental systems not bridged over by memory are so many independent individualities, and if started on their career with a good supply of mental material, they form so many independent personalities. For, after all, where memory is gone the dissociation is complete. This dissociation can be traced to functional as against structural interrelationship of psychophysiological elements and systems.

CHAPTER VIII

THE NATURE OF FAMILIARITY

The recognitive function of the representative element is possibly more clearly revealed in cases where previous perceptual experience of the object does not result in its subsequent recognition. Consider what happens, for instance, when we meet a person whom we do not seem to know, but who introduces himself as one who has had the pleasure of our acquaintance. We are told of the particular circumstances under which we have met, we are reminded of the events that have taken place during that time, of our mutual friends and acquaintances that have then been present, of the subjects we have conversed; and as we scrutinize the features of the stranger's face we try to bring up more images, more representations. With the growth of the accumulated representative elements the stranger's face becomes to us more and more familiar, and finally the particular representation relating to the specific object, the stranger, shoots up, and we recognize in the stranger an old acquaintance. What again happens when we meet with a person who is strangely familiar to us. The "strange" familiarity consists in the arousal of a number of specific representations, many of which are recognized as incongruous and are rejected. Representations rise and revolve round that percept. The mind tingles with cognitive anxiety, with mental throes on the eve of giving birth to the specific associations, resulting in final recognition. This peculiar condition of subexcitement of representative elements started by the perception of an object constitutes the state which is termed the sense of

familiarity. *Familiarity is vague recognition,* recognition not as yet made specific.

Familiarity implies former perception, it implies the presence in the subconscious of a corresponding representation attempting to rise above the threshold of personal consciousness. In psychopathic states of paramnesia we find conformation of our present view. An object, an event perceived for the first time, appears to the patient as familiar. His so-called sense of familiarity may range throughout all degrees of recognition, from the point of extreme vagueness to the point of full specific distinctness. This depends on the phenomena of dissociation. The partially dissociated subconscious systems first perceive and cognize the object in the corresponding formation of representation which give rise to a greater or lesser degree of familiarity, according to the extent of association immediately formed. In many instances this can be proven to be the case by putting the patient in a state of hypnosis. In some cases the patient may directly declare, "I have had a glance at it before, but I have forgotten, and that is why it seemed to me familiar." The patient suffering from paramnesia, on being confronted with an object, may momentarily pass into a subconscious condition in which the object is perceived; on immediately recovering from his state and perceiving the object once more, a vague sense of recognition arises.

This view is still further confirmed and proved in an interesting case that has recently come to my notice. The patient is a proof-reader in a newspaper office. While reading his proofs it often seems to the patient that he has read all that before; he recognizes the news, although he knows that he reads the article or the news for the first time. An examination disclosed the fact that the patient, who had a tendency to the manifestation of phenomena of the subconscious order and who frequently passed into psychopathic subconscious states of short duration, formed the

habit of putting the proofs on his desk and glancing them over cursorily before starting the proof-reading. By gazing at his proofs he occasionally falls into a subconscious state, and actually reads the article or the news, and when passing out of the subconscious state and rereading the proofs he recognizes, in a more or less vague form, all he had read during his state of dissociation; representation emerges, and complete recognition is effected. Sometimes such complete recognition is brought about by the patient's own efforts.

The whole wealth of experimental work in hypnosis, as well as in psychopathology in general, may be brought in proof of the truth that recognition is not to be explained by familiarity, but, on the contrary, familiarity is to be explained by recognition. *Familiarity is vague, incomplete recognition*, it is recognition in a retrogressive state, so to say. To explain recognition by familiarity, and then reduce familiarity to a pleasant mood, to an agreeable feeling of at-homeness, is hardly justifiable, because the familiar may be indifferent and often even distinctly unpleasant and painful. The at-homeness theory of recognition is, moreover, inadequate, since it reduces the more known, the function of recognition, to the less known moods and feelings which, as such, are unanalyzable. To assert that these moods and feelings are due to organic sensations is hardly sufficient. The problem remains untouched, unanalyzed and unanswered, for not all organic sensations give rise to the sense of familiarity. The mood theory of familiarity is inadequate even on its own grounds.

Experiments in personality metamorphosis, experiments in formation of post-hypnotic states with the induction of complete or incomplete amnesia, experimental work in cases of psychopathic amnesia recurring in the so-called states of automatism, as in the states inaptly termed "psychic epilepsy,"—all these can be adduced in an almost endless variety to demonstrate the fact that familiarity is based on recognition present in the subconscious.

A few examples taken from the great number of experiments, for the sake of illustration, will suffice for our purpose. If we hypnotize a subject and suggest to him that on awakening he should quarrel, insult, and kick a person present whom he highly respects in his waking state, the subject on emerging from the hypnotic condition and passing into what I term the hypnonergic state will proceed to act out faithfully and earnestly all that is suggested to him in hypnosis. When afterward brought back into the state of hypnosis and suggested that on awaking he should not know anything that had transpired since the time of the first hypnotization up to the time of the second awaking, the subject, on finally emerging from the last state of hypnosis, knows nothing of what has taken place. A few days later, however, he may come and tell you with an air of great dissatisfaction, like that of a person who is trying to recall something that is familiar, but which nevertheless constantly escapes him, that he has had a very disagreeable quarrel with someone, but he does not know when it has taken place, what it has been about, nor who that person could have possibly been; in fact, the whole thing may have been nothing but a dream. The subject has simply a feeling of vague familiarity, of something disagreeable having occurred and nothing more. The whole experience may never come to full consciousness and recognition, although it is fully present in the subconscious, and can be revealed in many different ways—by automatic writing, by crystal gazing, by shell-hearing, by hypnoidization, by putting him into the hypnotic state, or by merely pronouncing the simple formula: "Now you can know everything." In case this is not carried out, the "feeling of familiarity" gradually fades away, and the subject soon forgets all about it; it fades away like a distressing, but extremely vague dream. Similar experiments may be varied as to form and matter, but they all yield like results.

It is extremely instructive to watch the way memories from the hypnotic state struggle up into the waking consciousness. Bring the subject into deep hypnosis and tell him different things, news that should agitate him, such, for instance, that his parents are dead, that his brother is arrested for grand larceny, that he himself is a liar of the worst kind, tell him things that are calculated to impress him by their unpleasantness; then suggest profound amnesia and wake him up gradually, say by counting to fifteen or twenty. The subject, if his consciousness admits of complete dissociation, will know nothing at all of the disagreeable things you have told him during his state of hypnosis. If now you tell him: "Try hard, you can remember, you can know what has happened." The subject tries hard. Something familiar seems to struggle up in his waking consciousness. " You have told me something disagreeable, but I do not know what it was about." After another hard trial: " Oh, yes, something about my parents, but I do not know what; it is familiar to me, it seems within my grasp, but somehow it escapes me." After another trial and suggestion from the experimenter the subject exclaims: " Oh, yes, you told me my parents died. That was rather disagreeable; you ought not to have said it." Bit by bit does the hypnotic experience struggle up to the surface of the waking consciousness, first in the vague form of familiarity and then as complete recognition. The rising experience, fully recognized in the subconscious, coming to the periphery of the primary waking consciousness may remain in the arrested state of recognition—namely, familiarity,—the fully and completely known experience, known to the subwaking consciousness, never protruding its head above the surface of the subconscious. In other words, representations of experience present in the subconscious, when emerging slowly into the light of the waking consciousness, struggle up not in a form of specific recognition, but in a condition of vague familiarity.

Familiarity is a state of retrogressive, degenerative recognition, due to the presence of representative experiences in the background of consciousness, in the subconscious.

Cases of psychopathic amnesia give further evidence of the same fundamental truth. Experience passed through in a state of narcosis, and in regards to which there is profound amnesia, can be elicited either by hypnoidization or by hypnosis. The experiences present in the mind, dissociated by the action of the poison, begin to struggle up slowly and laboriously and always in the preliminary form of familiarity. The same holds true in other forms of psychopathic amnesia. In some of my cases of amnesia this form of struggling up of subconsciously present experiences were specially well illustrated. The whole series of experiments carried out went to show forcibly and palpably that the sense of familiarity implies recognition. In other cases of amnesia under my experimentation the same relation was clearly revealed. The patient need not be hypnotized, but put simply into a state of hypnoidization.[1] The chips and fragments of memories that struggled up to the surface of the primary waking consciousness were at first incoherent and unfamiliar in character and were not recognized by the patients, but as more of them gathered and had become synthetized, the sense of recognition began to appear. At first the sense of recognition was extremely vague, resembling the state of remembrance of a dream gone by, then the experience became more familiar; it appeared as something that had actually taken place some time ago in the patients' lives; and finally the sense of recognition reached its full state of development, and the experiences became localized in place and time. In the meantime, during this long and difficult struggle toward full recognition, it could be shown that the lost experiences were subconsciously present.

[1] See Sidis, Psychology of Suggestion; also Psychopathological Researches.

Familiarity, then, cannot be regarded as the primary state out of which recognition develops, but, on the contrary, recognition is the primary state and familiarity is the derivative one. Of course, if by the term familiarity is meant not that psychic state observed in the adult consciousness, both normal and abnormal, but that primary state of recognition out of which more definite recognition develops, then the contention may be admitted, but at the same time it must be declared as trivial. For it is obvious that a higher, more complex, and more definite state of recognition arises from one that is lower, less complex, and less definite. The sense of familiarity implies previous perception now dissociated, but subconsciously present and struggling up toward the surface of the upper consciousness to gain recognition.

The sense of familiarity depends on the condition of incomplete or of imperfect association. This may range through different shades and stages. Should now the dissociation be complete, the sense of familiarity will be completely absent. The object, though experienced, will be regarded as strange, as entirely new, and will be felt as something that has never been experienced before. The fault will lie here in the paucity of associations with representative elements. Where through some accident all the associations of representative elements are reduced to their minimum of functional relationship, the world of sensory experiences, the world of objects, will appear as to one newly born, a state found in the case of Mr. Hanna, an account of which is given farther on.

CHAPTER IX

NEURON ORGANIZATION AND MULTIPLE PERSONALITY

The investigations of Golgi, Cajal, and others point to the fact that the nerve-cell, especially that of the cortex of the higher forms of life, is an independent unit. The neurons form combinations of greater and greater complexity; the groups form systems, communities, constellations. These organizations of neurons are not of an anatomical, structural character, but of a purely *functional* relationship. The functional interrelation of neurons into more and more complex organization is concomitant with the functional interrelation of elementary psychic units and systems. The functional interrelation of primary and secondary sensory elements as well as representative elements and systems runs parallel to the functional interrelation of neuron elements and systems. The individual mind may be regarded from this point of view as a complex system of many minds or, more strictly speaking, the psychophysiological individual may be viewed as an organization of many subordinate individuals. As pointed out in a former work of mine:[1] "Every nerve-cell anatomically considered is a complete unit. The processes coming out from different nerve-cells do not fuse with processes coming out from other nerve-cells, but rather interlace and come in contact like the electrodes of a battery in forming the electric circuit. . . . The associations of nerve-cells is not organic, but functional.

"Nerve-cells with concomitant psychic moment-content come in contact with other nerve-cells, accompanied by

[1] Sidis, Psychology of Suggestion.

psychic content, by means of their fine terminal processes. The association of cells forms a group whose physiological function has a concomitant mental activity. . . . By means of association fibres the groups are organized into systems, the systems into communities, the communities into clusters, the clusters into constellations, and each of the higher more complex aggregates is more feebly organized by less stable association fibres.''

Now, if the constitution of the individual mind be made up of many subordinate individual minds, or of individuals less complex in character, we may well conceive the formation of secondary individualities or of secondary personalities in the various states of mental dissociation and degeneration. Under the influence of hurtful stimuli, be they toxic or traumatic in their nature, the first stages of functional degeneration may give rise to functional dissociations along different lines. Different individualities, often parasitic in character, may arise, develop and even stifle the primary personality. There may be as many different personalities, parasitic or secondary, as there are possible combinations and disaggregations of psychophysiological aggregates. There may, therefore, be different forms of secondary consciousness or of multiple personality. They may be of a simultaneous character or one of alternation. The personalities may appear side by side, or they may appear alternately. The play of personalities may be of a dramatic character, the characters and personalities appearing on the scene of consciousness like so many actors, the whole appearing as a play of many different persons. Such cases, however, occur after long training of the subconsciously formed personalities, so that they form and unform, appear and disappear from the scene of action, as if they were actual and not at all parasitic, foam-like constituted individualities. When such dramatic personalities reach a high stage of development and come and go on the stage like actors impersonating

various characters, according to the needs or inspiration of the moment, then with the great power of imitation and play they give themselves *names*, and for the sake of dramatic play and sensation claim to be fully fledged persons *simulating the living that have gone from this world. In the act of simulation they convey in their own fashion the fact that they are not living personalities, but still claiming existence, they place their being in another world, in the world of discarnate spirits.* The truth of the being of the simulated quasi-personality is asserted in its own peculiar fashion. *In its own way this transient trance personality reveals its real character, and it is all the more satisfied as the assertion is made in a dramatic, sensational form.*

The usual forms of multiple personality are those of alternation. Even in the simultaneous forms the order is really one of rapid alternation. The dramatic play of the personalities, in fact, requires such an alternation. The persons, fictitious or simulated ones, come and go, reproducing relations of persons in real life. The simultaneous presence of many personalities brings with it confusion, so that no more than two personalities enter into the simulated intercourse. The simplest way is to follow up cases in which this dramatic play has not reached such a high state of development. There is an interval between the appearing personalities. Each one carries along with it its own mental continuity. Each individuality, like a person in real life, has its own character, its own memory. The mental systems are independent in their function, their memories do not fuse, nor do they run into one another. Like actual persons in real life, persons whom they imitate and simulate, they stand out independent. The personalities do not interpenetrate. There is an impassable gap between them. When one appears the other is absent, and often the life and memories of one are not known to the other. One personality may often enter into communication with the

other. This is somewhat similar to what we find in real life, when different people try to get information of the life of their neighbors. It may, therefore, happen that some personalities may have information about their fellow personalities, while the latter are ignorant of the life of the former; in fact, they may not even know of their existence. But even in those cases where there is knowledge of the life of the fellow personality, the knowledge is not a direct one; it is entirely of an indirect character, as it is in the case of living persons; one does not live directly the life of the other. They know of the life experience of the other

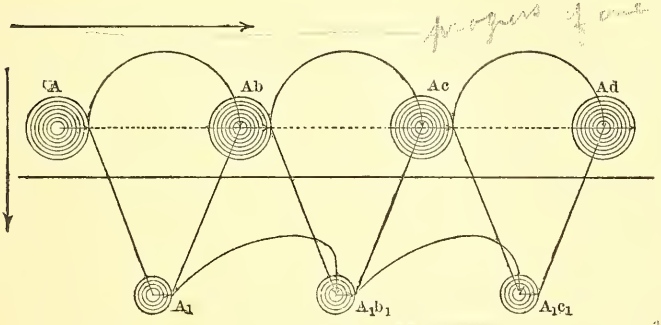

FIG. 14.

personalities by information. In reality, between the life of one and that of the other there is a clear gap.

Let the concentric circles of A (Fig. 14) represent the widening successive beats of consciousness of each simulating personality, and let A_1 represent that of another; then from A to A_1 there is a gap. This gap may be one of deep unconsciousness or of a third state of consciousness with a vague relation or with no relation at all to either A or A_1.

We may represent the periodical manifestations of the quasi-personality by a series of circles. Between each manifestation and the other there is a gap. Let A represent one period of functioning activity and A_1 the next one, then between the two there is a gap,—a complete break.

With the disappearance of A_1, the first one, A, but with some modification, comes to the surface; we may term it Ab. The beginning of Ab connects itself with the end of A. This is indicated by the arrow. With the cessation of Ab, A_1, with some modification, say b_1, appears, the system being A_1b_1; this latter connects itself not with Ab, but with A_1. We, therefore, may have a series of A, Ab, Ac, Ad, Ae, etc., with gaps, in the interstices of which there are other active states of another personality, consisting of a series, A_1, A_1b_1, A_1c_1, A_1d_1, A_1e_1, etc. The former

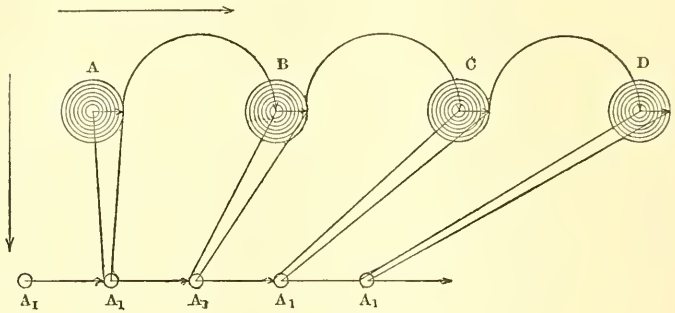

FIG. 15.

are synthetized into one personality, having its own life history, character, and memory, and so are also the latter. In such a case we have the phenomena of double personality. A third, fourth, fifth, and more series may be interposed, and we may then have the phenomena of triple, quadruple, quintuple,—in short, the phenomena of multiple personality.

It may again be that a dissociated system falls into the subconscious, and keeps on repeating itself in the form of independent states, but vaguely connected with the principal personality. This system may keep repeating itself, but may not reach the full stage of personality; it may be too elementary in its psychic content and type. Here, too, the lapse may be complete, and the manifested disso-

ciated mental system appears in the gaps formed by the lapses of the principal personality. Here, again, the successive series of the principal personality present one *continuity,* while the successive series of the dissociated elementary system, A_1, are so many *repetitions* of the same state.

Let A (Fig. 15) represent the main personality of the patient, B the next emergence after the break. From A to B there is a break in which the dissociated system, A_1 occupies the whole field of consciousness. Now the start of the nucleus of B is the last act of A. The same holds true in the case of B and C, C and D, and so on. As soon as the personality enters into its life activity it begins where it has left off, no matter how wide and deep the lapse or gap may have been. A fully developed personal system *must have a continuous history.* For continuity is one of the main attributes of personality.

CHAPTER X

PLURAL PERSONALITY

The formation of many personalities, their dramatic play, their dissociation, new associations, interrelations, and sense of familiarity can possibly be best brought home to the reader by concrete examples from the vast domain of abnormal psychology. A number of cases representing different types of multiple personality are studied and analyzed farther on; meanwhile, I think that a couple of cases will be sufficient for our purpose. The following remarkable case, studied by Dr. Morton Prince of Boston for a number of years, will probably best illustrate the meaning of multiple personality.[1]

"When Miss Beauchamp first came under observation she was a neurasthenic of a very severe type. She was a student in one of our colleges, and there received a very good education. But in consequence of her neurasthenic condition it was simply impossible for her to go on with her work. She was a wreck, I might say, in body. In temperament she is a person of extreme idealism, with a very morbid New England conscientiousness, and a great deal of pride and reserve, so that she is very unwilling to expose herself or her life to anybody's scrutiny. This has been one great difficulty in the study of her case. To this I would add that she is a person of absolute honesty of thought and speech. I feel sure we can rely upon and trust her absolutely and completely. I have never known her, nor has anyone, I believe, known her—as herself, or the person whom we call herself—in any way to indulge

[1] I am indebted to Dr. Prince for his revision of this brief account.

in any deception. Nevertheless, every safeguard has been employed to guarantee the *bona-fide* character of the phenomena.

"Now she came to see me in this neurasthenic state, but I found treatment was of almost no use. The usual methods were employed with no result, and it seemed as if her case was hopeless. Finally I concluded to try hypnotic suggestions. She proved a very good subject, and the suggestions produced at the time rather brilliant results. In hypnosis she went easily into the somnambulistic state. This somnambulistic state came later to be known as B. II., while the first personality with whom I became acquainted, Miss Beauchamp herself, was known as B. I. Now I used to notice that as B. II. she was continually rubbing her eyes; her hands were in constant motion, always trying to get at her eyes. Still I paid very little attention to it, or placed very little significance in this fact, merely attributing it to nervousness. One day when I hypnotized her and referred to something that she had done in a previous hypnotic state—that is to say, something that she had said or done in a previous state when I supposed she was B. II.—she denied all knowledge of it and said it was not so. This surprised me, and I attributed the denial at first to an attempt at deception. I waked her up and put her to sleep again, and this time she admitted what she had previously denied. This rather puzzled me, and I made various tests to determine her honesty in the matter. The next time I hypnotized her she denied what she had previously admitted, and so it went on, denying and then admitting, until it dawned upon me that I was dealing with an entirely different personality, and this proved to be the case. It turned out that when she went into the state of which she later denied the facts, she was an entirely distinct and separate person. This third personality, which then developed, came to be known as B. III. We had then three mental states, B. I., B. II., and B. III.

" B. I. knew nothing of the others. B. II. knew B. I., but no more. B. III. knew both B. I. and B. II. Thus far there was nothing very unusual.

" Now B. III. has proved to be one of the most interesting of all the personalities that have developed in the case. In one respect it is one of the most remarkable personalities, I think, that has ever been exhibited in any of the cases of multiple personality, as will, I think, presently appear. B. III., like B. II., was constantly rubbing her eyes, so that I was frequently compelled to hold her hands by force to prevent her from doing so. When asked why she did this, she said she wished to get her eyes open, and it turned out afterward that it was she who was rubbing the eyes of B. II. in the earlier times. At this time I prevented B. III. from opening her eyes for the reason that I feared that, if she got her eyes open and was thereby able to add the visual images of her surroundings to her mental life as B. III., these same images of her surroundings which she would also have, of course, when she was B. I., would by force of the association awaken all her mental associations as B. III., and that, in consequence, B. III. spontaneously would be constantly coming into existence of her own accord. This afterward proved to be the case. B. III. always insisted upon having her eyes opened, complaining that she wished to see, and had a 'right to see.' One day, some time after this, while she was at home, owing to some nervous excitement, she was thrown into the condition of B. III., and then, as I was not there to prevent it, she rubbed her eyes until she got them open, and from that time to this she (B. III.) has had a spontaneous and independent existence.

" This personality dates her whole independent existence from this day, and she always refers to events as being 'before' or 'after she got her eyes open.' That is the central event in her life, just as mothers date periods before or after the birth of a child. Now this personality

came afterward to be known as Sally Beauchamp. (The name Beauchamp has been adopted in this account for all the personalities.) She took the name for fun one day, a name that she got out of some book, and by that name she has been known ever since. In character she differs very remarkably from B. I. I would say here that B. I. is a very serious-minded person, fond of books and study, of a religious turn of mind, and possesses a very morbid conscientiousness. She has a great sense of responsibility in life, and with those who know her trouble is rather sad and depressed in consequence of the general difficulties and trials of her life. Sally, on the other hand, is full of fun, does not worry about anything; all life is one great joke to her; she hates books, loves fun and amusement, does not like serious things, hates church,—in fact, is thoroughly childlike in every way. She is a child of nature. She is not as well educated as is Miss Beauchamp, although she reads and writes English well; yet she complains constantly that she cannot express herself easily in writing, but she does it quite well all the same. She cannot read French or any of the foreign languages which Miss Beauchamp knows, and she cannot write shorthand; in short, she lacks a great many of the educational accomplishments which the other character possesses. She insists, although of this I have no absolute proof, that she never sleeps, and that she is always awake while Miss Beauchamp is asleep. I believe it to be true. Then Miss B. is a neurasthenic, Sally is perfectly well. She is never fatigued and never suffers pain.

" During the first year Sally and Miss Beauchamp used to come and go alternating with one another. At first whenever B. I. became fatigued or upset from any cause, Sally was likely to come, the periods during which the latter was in existence lasting from a few minutes to several hours. Later these periods became prolonged to several days. It must not be forgotten that though Miss Beau-

champ knows nothing of Sally, Sally, when not in the flesh, is conscious of all Miss Beauchamp's thoughts and doings, and the latter could hide nothing from her.

" Curiously enough, Sally took an intense dislike to B. I. She actually hated her. She used to say to me, 'Why, I hate her, Dr. Prince!' and there was no length to which Sally would not go to cause her annoyance. She would play every kind of prank upon her to make her miserable. She tormented her to a degree almost incredible. While Sally would never do anything to make anyone else unhappy, she was absolutely remorseless in the way she tormented Miss Beauchamp by practical jokes and by playing upon her sensibilities. I will give a few illustrations. If there is one thing which Miss Beauchamp has a perfect horror of, it is snakes and spiders. They throw her into a condition of terror. One day Sally went out into the country and collected some snakes and spiders and put them into a little box. She brought them home and did them up in a little package, and addressed them to Miss Beauchamp, and when B. I. opened the package they ran out and about the room and nearly sent her into fits. In order to get rid of them she had to handle them, which added to her terror. Another joke was to take Miss Beauchamp out into the country when she was very tired, and in an unfit condition to walk; that is, Sally would take a car and go out six or seven miles into the country to some retired place, and there wake up Miss Beauchamp, who would find herself far out in the country with no means of getting home, no money in her pocket, and nothing for it but to walk. She had to beg rides when she could from passing wagons, and came back tired, worn out, used up for a week.

"A great friend of Miss Beauchamp, to whom she was under strong obligations, had asked her to knit a baby's blanket. She worked on that blanket for nearly a year; as soon as it would near completion, Sally would unravel it,

and then, like Sisyphus, she would have to begin the task again, only to have Sally pull the whole thing to pieces again. Finally she came to herself one day and found herself standing in the middle of the room tied up in a perfect network and snarl of worsted yarn; the yarn was wound round the pictures and then round and round the furniture, the bed, the chairs, herself, obliging her to cut it to get out of the snarl. Another favorite joke of Sally's was to make Miss Beauchamp lie. She had the power when she pleased, of producing aboulia, and also of making B. I. say and do things against her will; for after a fashion she can get control of her arms and legs, and also of her tongue.

"Sally made her tell most frightful fibs. For instance, when asked who lived in a small squalid little house at the side of the road, she said 'Mrs. J. G.,' a very prominent lady in society, and very wealthy. 'Why, I thought she was rich!' 'Oh, yes, but she has lost all her money now.' Miss Beauchamp would be mortified at hearing herself tell these astounding barefaced fibs, which her listener must know were fibs, but she could not help it. Again, for a time at least, Sally put B. I. on an allowance of five cents a day. She would find the money waiting for her in the morning on the table with a note saying that it was her allowance for the day and she could not spend more. Sally took away her postage-stamps, and if Miss Beauchamp wrote a letter it had first to be exhibited to Sally, and if Sally approved it, it was posted; if not, it did not go, and that was the end of it.

"Miss Beauchamp is a person with a great sense of dignity, and dislikes anything that smacks of a lack of decorum or of familiarity. Sally had a way of punishing her by making her sit on a chair with her feet upon the mantelpiece. B. I. could not take her feet down, and was mortified to think she had to sit that way. Sally carries on a correspondence with Miss Beauchamp, writes letters to her pointing out all the weak points of her charac-

ter, dwelling on all the little slips and foibles of her mind, telling her all the reckless acts and secret thoughts, indeed, everything she has done that would not bear criticism. In fact, when she has a chance to stick a pin into her, she does it. When Miss Beauchamp wakes in the morning, she may find pinned upon the wall of the room verses containing all sorts of personal allusions, letters calling her names, telling fictitious things that people have said about her; in short, doing everything imaginable to make her life miserable. Nevertheless, at times when she has gone too far, Sally has got frightened, and then she would write me a letter and ask for help, saying that she 'could not do anything with Miss Beauchamp,' and I 'really must help her.'

"Although B. I. knows nothing of Sally, Sally not only is conscious of Miss Beauchamp's thoughts at the moment they arise, but she is capable, as I have said, of controlling her thoughts and her arms and legs and tongue to a certain extent. Sally can produce positive and negative hallucinations in B. I. and frequently does so for a practical joke. During the times when Sally is in existence, B. I. is—as Sally puts it—'dead,' and these times represent complete gaps in Miss Beauchamp's memory, so that she has no knowledge of them whatever. ' What becomes of her? ' Sally frequently asks. Sally is never 'dead.' Her memory is continuous; there are no gaps in it. She not only knows—simultaneously, as I said—all of B. I.'s thoughts and emotions and sensations, but more than that;—Sally's thoughts are entirely distinct from and independent of B. I.'s thoughts, with which they are coexistent, but not identical. B. I.'s thoughts are not Sally's thoughts. Sally's thoughts coexist alongside of and simultaneously with B. I.'s; but Sally's mental life is made up of entirely different and separate thoughts and feelings from B. I.'s, so that Sally will have a train of thought at the same time with B. I., of an entirely different nature. All this is also true of the relation of Sally's mind to the personality

—B. IV.—who came later, excepting that Sally does not know B. IV.'s thoughts. While either Miss B. I. or IV. is thinking and feeling one thing—is depressed and self-reproachful, for example—Sally is feeling gay and indifferent and enjoying Miss B.'s discomfiture and perhaps planning some amusement distasteful to her.''

Professor J. H. Hyslop gives me the following account of an interesting case of multiple personality, in which the parasitic '' discarnate '' personalities claim to come from '' other worlds.''

'' A little over three years ago an orthodox clergyman, whose real name I here conceal under that of Mr. Smead, wrote me that his wife had done considerable automatic writing with the planchette, and had received some apparently spiritistic communications, and that he wished I would investigate the identity of a certain person claiming to communicate, and who gave his name as Harrison Clarke. In the same letter Mr. Smead remarked that he had some matter purporting to be communications with reference to the planet Mars, resembling the work of Flournoy's case of Mlle. Helene Smith. I requested the privilege of seeing this matter, and it was at once sent to me. I became sufficiently interested in the phenomena to pay Mr. Smead a visit to investigate the case. My first task was to convince myself that I was dealing with genuine phenomena of some kind, and this was done in various ways, besides ascertaining the standing and respectability of Mr. and Mrs. Smead.

'' Inquiries into the history of Mrs. Smead's planchette writing showed that she had been familiar with the instrument since childhood. But nothing of a systematic character had been done or preserved until 1895, when some allusions were made in the writing to the planet Jupiter, which was described as the 'babies' ' heaven. Mr. and Mrs. Smead had lost two children stillborn, and one a few hours after birth, and Mr. Smead a brother some years earlier by a

railway accident. It was in the names of these personalities that the ' communications ' purported to come regarding planetary conditions. After the allusion to Jupiter, some inquiry was made as to whether any of the planets were inhabited, and the reply was that Mars was populated. Soon afterward a map was drawn of this planet, representing a continent and the various zones on it. The names of these zones were given, and were ' Zentin ' (cold), ' Zentinen ' (very cold), ' Dirntze ' (north temperate zone), ' Dirntzerin ' (south temperate zone), and ' Emerincenren ' (Equator). This was followed by a dialogue between Mr. Smead and the ' communicator,' in which it was said that the inhabitants of Mars were somewhat like our Indians, and that some of them were civilized in certain respects. Allusion was also made to the ' canals,' in the form of expression, ' the way they fix the water,' which was described as canals connecting the oceans.

" At this point the experiments were interrupted for five years with exception of a few attempts, one of which was fairly recorded, and purported to be a ' communication ' from a deceased friend, of whose death Mr. and Mrs. Smead say they did not know until after the fact was written in connection with the planchette. In 1900, when the writing was resumed, the Martian ' communications ' occupied most of the time given to the work for about three months, and were well developed and systematic, as if the interval had been employed by the subconsciousness in maturing what it had to say. A hieroglyphic language was invented by this agency, and said to represent the visible speech of the Martians. One of the first things done in the resumption of Martian messages was the drawing of a figure which was called a ' sea vessel,' and the writing of two words, ' Seretrevir ' and ' Cristririe.' The first of these words was said to mean 'sea vessel,' and the latter its name. A curious feature of the incident, however, was the state-

ment that the Martian ships were made of trees, and that the inhabitants of that planet did ' not use sawmills as we do.' Is this an association of Indian canoes cut out of trees with what was said five years previously about the Martian inhabitants being like our Indians? It certainly has this probability.

" In the next experiment a curious figure was drawn, unrecognizable in itself, but which was explained to represent a ' dog-house temple.' In the corners of the figure two animals were drawn which were meant to represent dogs, and which were said to give the name to the temple. Then the hieroglyphic characters were drawn, describing the temple by name, and then translated into English characters. They were ' Ti femo wahrhibivie timeviol,' meaning ' the dog-house temple,' the words taking the same order as in English.

" At the same sitting the name of the lake, drawn five years earlier on the map, was given. It was ' Emervia.' Mr. Smead then asked for the Martian for ' the boy runs,' and received the reply that people do not run on Mars, but only walk. The Martian characters were then drawn for ' the boy walks,' and were translated into English characters, ' Ti inin amaravim.' The form of thought was explained to be ' the boy walking,' and not ' the boy walks.'

" A number of Martian objects were drawn and described at various times, when at last a fine palace was drawn and described in detail. It had two divisions, with lawns and flower-plots in front and mountains behind. One part was gray stone and the other white. A few days later the ground-plan of the same palace was drawn, and then a curtain that was said to hang, possibly as a piece of tapestry, in it. The representation of this curtain was, in fact, a fine work of art. The details were all minutely described by the planchette.

" Finally, a barrack was drawn, and said to be the building where Martians lived before marriage and while

working in the fields. There were indications that the class thus provided for were aristocratic. It had been earlier stated that the members of this class were not allowed to vote at the election of rulers and legislators. The drawing of this barrack, however, was the last of the Martian ' communications.' If I could here give the detailed record of the Martian incidents, and the hieroglyphic language and sentences written out with the planchette, it would be apparent to the student that both represent a very systematic illustration of subconscious work.

" Without any warning or previous indication the Martian ' communications ' were interrupted by a new personality calling himself Harrison Clarke. He soon dropped the planchette and used the pencil. A special trait of this personality, not noticeable before appearance or after his disappearance, is his adeptness at tricks of writing. He shows about equal facility at inverted, mirror, and normal writing. The inverted writing is from right to left, and must be read upside down. The mirror writing must be read with a mirror. Mrs. Smead never in her life, at least so far as her memory goes, practised mirror or inverted writing, and yet these were produced by Harrison Clarke as easily as the normal type. But it was his biography that had the greatest interest. This was written out at various times and without regard to chronological order, but reduced to this was as follows:

" Harrison Clarke was born in a town that is now a part of Chicago, and at two years of age was brought to Albany, N. Y., where he was cared for, until grown, by an aunt. He came first to New York City, and went thence to Baltimore, where he worked in a store until, becoming engaged to a lady and finding it necessary to learn a trade, if he was to marry, he returned to New York and entered the office of the New York Herald as a type-setter. The death of his lady-love in the meantime led to his enlistment in the army, and he was in the last regiment that left New

York City for the war, and was in the battle of Shiloh, where, one morning, after being out all night with his comrade, he was discovered by rebel guards and shot. His lady-love, deceased, appeared to him as he was dying and told him that he was going with her, and on her consent that he might some time return to tell of his survival after death, he agreed to die content. The generals on both sides and the date of the battle were correctly named.

" Now, Mrs. Smead does not remember ever hearing of any person by the name of Harrison Clarke and also does not recall reading any account of that battle. The New York Herald authorities refused to permit investigation as to the employment of any such person as Harrison Clarke on their pay-rolls in 1861 and 1862, and the Directories of that city for several years show no such person. Inquiries at the war records in Washington showed that *no New York regiments were in the battle of Shiloh.* They show that there was a Harrison Clark in the 125th Regiment of New York, but he was mustered out at the termination of the war in 1865, and at this writing is still living in Albany, N. Y. There was a Harrison Clark in one of the Illinois regiments that was in the battle of Shiloh, and he was also mustered out at the end of the war, and did not die until 1895. None of the facts fitted him, so far as could be ascertained.

" As soon as I had determined these facts, and the impossibility of treating this personality as anything but subconscious action of Mrs. Smead, I resolved to confront it with this story of the failure to prove identity. I intrusted the task to Mr. Smead with directions. At the first opportunity Harrison Clarke was told of his imposture. He was embarrassed for an explanation at first, but at a half suggestion he took up the story that he had deserted the New York regiment and joined one under a different name that permitted him to be in the battle of Shiloh. *But he refused to give the new name under which he enlisted.* He

was not to be entrapped. But later, evidently feeling doubtful about the impression he had made, he caused a vision to Mrs. Smead in which she saw him pointing out the 125th Regiment of New York marching through the streets of that city and the vacancy in the ninth line, as an evidence that he had been killed! Here was quite indubitable evidence that secondary personality was at the bottom of the whole affair, to say nothing of the evidence in the previous falsity of his story.

"In the Martian 'communications' there were frequent indications of 'messages' from deceased friends of the Smeads, sometimes whole sittings being taken up with these. But when Harrison Clarke came in to control, intruders of all sorts were absolutely excluded. When he found himself ridiculed for his spiritistic claims, the 'communications' took on the personality of deceased friends of the Smeads in most cases, and only a few instances of apparently verifiable cases of unknown persons. For a long period the 'communications' purported to be from or about persons known to the Smeads, and to represent incidents which, in most cases, were known to them. The spirit of fabrication was exorcised by the failure of Harrison Clarke to prove his reality. I can give no detailed account of these instances, as it would take me far beyond the limits of this paper even to summarize them. But the chief personality concerned was Sylvester Smead, the deceased brother of Mr. Smead. The chief interest attaching to this fact is the selective unity shown by Mrs. Smead's subconsciousness in the choice of incidents to represent discarnate reality, indicating a very large range of power of imitation."

The Flournoy case of multiple personality with its controlling guide and subordinate personalities belongs to the same order of mental phenomena. The case is probably well known to the reader. I give here a brief account from a review made by Professor Joseph Jastrow.

" The story is a complicated one. The medium in the narrative goes by the name of Helen Smith. Her father was a merchant, a Hungarian by birth, and is described as an active, enterprising, matter-of-fact man and a good linguist; though quite hostile to ' spiritualistic ' notions, he was gradually won over to them by his daughter's mediumship. Her mother, born in Geneva, has always been markedly predisposed to spiritualistic phenomena of all kinds, has had ' psychic experiences ' of her own, and is also involved as narrator or witness in several of the less clear and less credible phenomena of Helen's mediumship. Helen herself is described as an attractive woman of about thirty years of age, intelligent and frank; she is of good physical and mental health, presents none of the recognizable stigmata of nervous instability, if we except a six-month period of general weakness, and her mediumistic tendencies; and resents strongly the imputation of being abnormal in any respect. At the age of fifteen she became an apprentice in a large business house and has earned her living as a trusted and capable employee. She has refused to allow any photograph of herself to accompany the volume, but has consented to its publication in spite of her radical disbelief in the explanations offered. During her girlhood she was given to day-dreaming, experienced hallucinations and unusual warnings, and was, as she still is, of a highly sensitive, nervous, and imaginative temperament. She regarded herself as a strange and unusual person, who was in a way out of place in the everyday existence about her, and she was ever ready, though often with fear and trembling, to perceive in unusual happenings the confirmations of her imaginative creations. Adolescence brought about a consummation of many of these tendencies, in the way of more positive hallucinations, momentary lapses of consciousness and sporadic instances of automatic or ' somnambulic ' actions. M. Flournoy regards it as likely that these excursions in an unreal world

and the tendencies to automatic expression would have disappeared normally and naturally amid the sterner realities of life (for this form of coquetting with castles in Spain and seriously mystic occupation with the less humdrum world of one's imagination is not a rare trait of childhood), were it not for her introduction to the manifestations of spiritualism. These became both rain and sunshine to the tender sprouts of her subconscious fancy and developed them into a tropical luxuriance of automatic manifestations. Table turning and rapping out of messages she accomplished at once, while a slight suggestion on the part of the 'circle' induced automatic writing and clairvoyant visions. These began early in 1892 and continued without any unusual features until the spring of 1895, when, partially under the incentive of the interested and professional presence of M. Flournoy, the 'polymorphous' automatisms of Hindu and Martian blossomed forth.

"Mlle. Smith, in her present séances, enters into a trance, or rather into one of several forms of trance, the general reality of which is attested by physiological changes of breathing and attitude, by the presence of abnormalities of sensibility and movement, and by marked psychologic characteristics similar in every way to those of the hypnotic trance. Her appreciation of her surroundings, her remembrance of her trance-doings on return to her normal state, vary in the several trances; several different impersonations or trance conditions may occur in the same sitting, and the most remarkable phenomena seem associated with the deepest disturbance of consciousness. Her general guide or spirit-control is one 'Leopold,' who enters partially into all her automatic 'cycles' and into her daily life. She not rarely sees him, or hears his voice; he has indicated the whereabouts of hidden articles, warned her against impending disaster, prescribed remedies for the sick, and in particular directed Helen as to what she may

and may not do both in ordinary worldly and in ' psychic ' situations. ' Leopold ' has been a great help and also something of a hindrance to the investigations. He alone is in touch with the subconscious strata of Helen's mental storehouse, and can by suitable suggestion be made to yield information which the normal Helen is unable to give; but at crucial points he too professes ignorance, and pronounces *licet* and *non-licet* upon attempts to bring to light hidden sources of ' spirit-revealed ' knowledge. Now this factotum and mentor, Leopold, is really the disembodied spirit of Joseph Balsamo, better known as Count Cagliostro, who departed this life with a somewhat shattered reputation in 1795. Leopold seems to personify Balsamo mainly when Helen passes into what M. Flournoy calls her ' royal cycle,' in which she becomes Marie Antoinette and Balsamo her *' cher sorcier '* and devoted admirer. While the unfortunate queen seems in many ways the favorite character of Mlle. Smith's automatic repertoire, and while she assumes the part with superb histrionic realism of attitude and manner; and spends entire evenings as the queen, and partakes an actual dinner which she eats with royal appetite, entertaining her real, but to her transformed, guests, gracious to her favorites and queenly to all; yet this is but the spontaneous exuberance of an imaginative creation the materials for which are readily accessible to her normal self, and many details of which have been traced to an engraving accompanying Dumas's account of Balsamo. We shall, therefore, follow M. Flournoy to India and to Mars.

" The Martian cycle seems to have sprouted from a chance suggestion of one of the sitters, a M. Lemaître, that it would be interesting to know what was going on on the planet Mars, and the further elaboration of the topic after the manner of Flammarion. This notion, ' caught on the wing,' made a great impression on Mlle. Smith's subconscious automatism, and in one of her subsequent clairvoy-

ant visions she seems to be floating away into space and the table spells out ' Lemaître, ca que tu desirais tant! ' and then she arrives at her destination which the table announces to be Mars. At this same séance she also brought messages to an old lady from her dead son Alexis Mirel, who reappears in another incarnation on Mars as Esenale. Then come descriptions of Martian houses, scenery and peoples, of customs and doings, and a bit of its fauna and flora. These are all fanciful enough and are evidently designed to be as oddly different from terrestrial conditions as may be. There is an intermediate condition in which Mlle. Smith can be induced to use pencil and brush and yet can receive by suggestion this visualized Martian scenery; in this way we have quite a collection of illustrations of things visible upon Mars. They are not particularly interesting. The landscapes and houses are rather Japanese, or vaguely oriental; the occasional specimens of a plant and animal are unusual combinations of familiar vegetable and animal qualities, not nearly so droll as those of Edward Lear. The one really remarkable feature of the Martian epos came only after a long period of incubation or subliminal preparation; this was the Martian language. In its fullest development it included the hearing of words in this strange tongue, speaking it, seeing it visualized in space and, best of all, writing it when the medium was completely entranced and personating a Martian. However, none of these processes ever appeared as fluent, extensive or completely spontaneous; yet we have short but significant and consistent messages in a wholly fictitious and strange-looking alphabet. Here is one of the messages reduced to Roman characters, and its French equivalent:

" ' Astané bounié zé buzi ti di triné nâmi ni ti di umêzé sé ï miré bi tarvini,

" ' Astané cherche le moyen de te parler beaucoup et de te faire comprendre son langage.'

"But how is the French equivalent known? Through Leopold, who vouchsafed a talismanic word and procedure by which the entranced medium could be induced to translate. The messages do not transcend the familiar mediocrity of spiritualistic circles, but their form is certainly a marvellous example of subliminal creative imagination, if we are willing with M. Flournoy to accept them as such. M. Flournoy's analysis of the language is most minute, and he pronounces it an 'infantile' production modelled closely after the French, the only language which Mlle. Smith knows. Its syntax and the arrangement of words are absolutely identical with those of French; the vocabulary is made as bizzare as may be, but it is possible in many cases to recognize the source of the invention. In brief, the noteworthy point is the holding in mind of the visual signs and the phonetic equivalent of these signs, and of their combination into words, at least sufficiently to hear, see and write brief messages; the imaginary Martian setting and corroborative, 'details added to give verisimilitude to an otherwise improbable tale,' are creditable to a subordinate personality, but they do not arouse the admiration evoked by the auditory and visual memory feats.

"The Hindu cycle is even more complicated, and its element of mystery remains as yet an unsolved problem. In this, Mlle. Smith appears as the daughter of an Arab sheik, whom she leaves to become, under the name of Simandini, the eleventh wife of Prince Sivrouka Nayaca, whose present incarnation is none other than M. Flournoy himself. This Sivrouka reigned over Kanara and built in 1401 the fortress of Tchandraguiri. Other characters are a faithful servant Adèl, a small ape Mitidja and a fakir Kanga, who is no other than the Astané of the Martian world. Upon this foundation there is again elaborated a complex drama too intricate to be here unfolded."

These cases may serve as good illustrations of the possi-

ble disaggregations and new aggregations of the mental systems that go to make up the warp and woof of human personality. Of course it remains yet to be shown how much of these phenomena is artificially induced and how much of this play is really spontaneous. In either case, however, the fact of plural personalities stands out clear and distinct. Training no doubt counts a good deal, but this in itself is insufficient to account for the independent personalities with their own characteristic traits, intellectual and moral, and with their own trains of memories impenetrable to all other personalities, persisting in their existence once formed, persistently refusing to be merged into any of the other personalities, and resisting all efforts at fusion. The life experience of the different personalities as well as their memories are so distinct that the information they get as to the life and experience of their neighbors is entirely of an indirect character. At the same time a closer examination of the cases reveals the fact that the personalities, in spite of their apparent independence, have a good deal in common. Different as the mental systems are, they have a good many common constituent mental groups.

Taken as examples of many others, these cases fairly illustrate the meaning of what is usually understood by the term multiple personality. In a broad sense we may say that tracts of consciousness separated by gaps, by breaks, which for the time being cannot be bridged over or united to form a continuity, are regarded as so many different personalities. A tract of consciousness may be affected through some shock, or through the influence of toxic or auto-toxic stimuli acting on the associations of the psychophysiological systems, bringing about dissociations and impassable gaps, so to say, in the mental continuity. If these dissociations run in many different directions, the phenomena of multiple consciousness, or what is the same, of multiple personality, are the inevitable result. When the old per-

sonality becomes disrupted by the hurtful stimuli into smaller and more contracted individualities, the fragments may under certain conditions, such as trance states and hypnosis, be again unified into the complete old personality. The content, however, in all these fragmentary personalities remains unchanged,—they are chips of the old block, and as such may be regarded as mere contractions of the old personality.

According to some psychologists, the new personality is identical with the old personality contracted along different lines. Such contractions of personality with expansions in other directions, reminding one of the protoplasmic amœboid contractions and expansions as adaptations in response to stimuli coming from the external environment, are by no means the exception; in fact, they are rather the rule. All along the course of one's life the stock of memories at the direct disposal of the personal consciousness keeps on contracting in some directions and expanding in others. Many memories drop out while others come in. How much do we remember of our infancy, childhood, boyhood, youth and even of our early manhood? There are leaks, breaks, gaps and losses in all directions. The perspective of our life history becomes shortened and contracted as our life journey lasts. On the other hand, the prospective into the future often expands beyond justifiable bounds. The content of personality keeps on changing, but we are hardly justified to designate phenomena of this order as multiple personality or as the formation of new personalities. No new personality is really formed. The whole process is simply a matter of amnesia. From a certain stand-point this view is quite legitimate. Looked at from the stand-point of the old personality all these lacks, losses and lapses of personality are simply so many contractions of individuality, so many lapses of memory.

The fact that the dissociated tracts of consciousness

cannot be bridged over, and what happens in one field of consciousness cannot become the possession of the neighboring field, though all of them intensely conscious; the fact that each dissociated mental aggregate has its own chains of memories which do not fuse with that of the other aggregate, and that, moreover, in the intervals of its inactivity, or when in the periods of its activity, it does not attach itself to the dominant functioning system, but picks up the chain of memories precisely at the point where it had dropped it, all these facts point to the presence of an independent personality. Moreover, under certain conditions, such as trance or hypnosis, these dissociated tracts of consciousness can be made to reveal their experiences, their memories, in fact, the whole of their content. While the dominant personal system is active, the secondary personality may sometimes know and sometimes be ignorant of what is happening to the other, but the two always regard one another objectively as strangers. Can we quite say that this is the experience of ordinary life? Is it a matter of every-day experience that our detached forgotten memories become active and set up housekeeping on their own behalf? Are not all these characteristics rather descriptive of what we mean by persons? Is it not in greater accordance with facts to describe phenomena of this order in terms of personal consciousness?

It is true that from the stand-point of loss of content the phenomena under discussion fall into the category of amnesia, but this is too general a classification. Multiple personality, no doubt, is a form of amnesia, but amnesia is not multiple personality. Multiple personality is a species of amnesia, and as such it has its own differentia. Amnesia is loss of content, but multiple personality is a lost content that has become an independent centre of activity with a history and continuity of its own, definitely—one may say absolutely—demarcated from the main consciousness and from all other neighboring centres of activity. A

centre of activity with *minimum* of content may be termed a personal moment-consciousness.[1]

At the same time we may regard the phenomena described as double or multiple personality from the point of view of loss of content, from the stand-point of simple amnesia. Amnesia may range from the simplest forms to the most complex. All the forms of amnesia may be arranged in an ascending series beginning from the simplest aphasias, where auditory or visual or other psychic elements are lost, passing through cases where more and more complex systems of elements are involved, where names, visual images of objects are gone, passing then to the loss of definite events of life, and finally ending with the dropping out of whole tracts of mental life covering minutes, days, weeks, months, years and even a whole lifetime. It is at this extreme end that the Hanna case finds its place, inasmuch as it represents the loss of a whole lifetime. Most of the cases current in literature are incomplete; in so far as the amnesia is but partial, only portions of the mental content are lost, while the Hanna case gives the first record of a *complete* loss of a lifetime from early infancy up to the moment of the accident. The only case in literature that somewhat resembles it, though incompletely, is that of Mary Reynolds. As the case is nearly a century old and has been found by Dr. Weir Mitchell among his father's papers—the account being written a number of years later after the original occurrence by a nephew of Mary Reynolds for Professor Archibald Alexander, who gave it to Professor John K. Mitchell, the father of Weir Mitchell—one must keep in mind the indirect sources, the many hands it has passed through and the indirect second-hand evidence. The Hanna case, being under direct observation and experimentation, stands alone

[1] The moments may be of different types, from the lowest to the highest. See Sidis, Psychology of Suggestion. This subject will be fully developed in a later work, Principles of Psychology and Psychopathology.

at the extreme end of the amnesia series as far as content itself is concerned. It has, moreover, all the traits characteristic of the phenomena of dissociation known under the name of double consciousness or multiple personality.

PART II

DOUBLE PERSONALITY, OR THE HANNA CASE

By BORIS SIDIS and S. P. GOODHART

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DOUBLE PERSONALITY, OR THE HANNA CASE

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CHAPTER I

ASPECTS OF THE HANNA CASE

Before presenting the case to the reader we intend to say a few words by way of introduction. We think it of importance to point out the distinguishing features of the case. In the study of the phenomena of multiple personality we get a glimpse into the nature of the highest product of evolution, namely, human personality. From the facts of variation from what we regard as the normal we can form an idea of the complexity of the human self. Personality is but relatively a unity, it is really a complexity of many subordinate units. As pointed out in the previous chapters, the human mind is not a simple entity, but is, correlatively with physiological processes, a complexity of mental states. In analogy with the anatomical structure of neuron systems, the self is a complexity of many systems of systems, of what may be termed moments-consciousness. Human personality, in short, can appear under various aspects, can become divided and subdivided into many personalities of various degrees of intelligence, as can be found in the induced states of hypnosis, such as personality-metamorphosis, in the various changes of personality observed in spontaneous cases under the disin-

tegrating influence of hurtful stimuli. Human personality can become crystallized into many different forms and can again be broken up into many subordinate units, which in their turn may become formed and re-formed, giving rise to a number of various personalities of a secondary character. These secondary personalities may coexist or alternate with the principal personality.

Alteration of personality is the most usual relation. With the manifestation of one personality the other disappears. Now it can be demonstrated by different methods, as it has been done in the Hanna case, that personalities which for the time being seem to disappear from the sphere of mental activity are really present subconsciously. Still, for all intents and purposes, they may be regarded as absent from the consciousness which is in active relation with the external environment.

Not being in direct relations with the external environment, the whole psychic content, the whole mass of associations remains unmodified. When now these dissociated systems of consciousness are stimulated to activity by various agencies, whether accidental or artificial, the mass reacts in the same way. The more often, however, the dissociated systems are brought into activity, the more often they are acted upon by different stimuli and made to react by their masses of psychomotor associations, the more frequently they become adapted to various external conditions, to various environments, the more modified does the content of the systems become. The mass of psychomotor associations gradually changes and there are more chances to draw the dissociated systems into the active primary consciousness standing in direct relation with the external environment. It is, therefore, of the utmost importance, in the case of functionally dissociated systems subconsciously present, to stimulate them as often as possible and draw them from their inactive obscurity to the upper regions of daylight consciousness; to bring them

into direct relations with the conditions of the external environment, and thus finally to effect an association with the primary functioning systems, or with what is regarded as the normal personality.

The unchangeability of the psychic content belonging to dissociated mental systems subconsciously present, as well as the principle of frequent stimulations by various agencies, physiological and psychological, under different conditions, are of great interest, both from a theoretical and practical stand-point. We have the possibility of running together and associating the disjointed portions of consciousness. This is precisely what has been done in the Hanna case, in which the association has been effectively established.

To be sure, the association is not effected by means of the principle of stimulation alone. We must also utilize the intermediary states which are of importance in mental alternation. In passing from the primary to the secondary personality there is an intervening period which is represented by a state of low moment-consciousness. This period varies in duration. Now it is not only the dissociated secondary states, but also the intermediary states that need be stimulated and often brought to the surface of consciousness in order to effect an association.

Cases of double consciousness are by no means abundant in the literature of abnormal psychology, but still rarer are the cases where the dissociation is so complete as to produce an amnesia so profound that the loss of mental content is so extensive as to have the patient revert to a state of infancy—to a state of a new-born baby—as it has occurred in the Hanna case. So rare are such cases of total amnesia that Janet, a man of such wide experience, tells us in his discussion of the Mary Reynolds case—a case which has been copied from book to book and which has circulated in literature for over a century—that he himself has not had the favorable opportunity of observing

cases of total amnesia such as presented by Mary Reynolds. Until now the Mary Reynolds case has been the only case of complete double consciousness on record. It is certainly unfortunate that it has been drawn from second-hand sources. The Hanna case, described in the succeeding chapters, may be regarded as the first case of complete amnesia and double consciousness which has been under direct personal observation as well as under experimental control.

There is, moreover, another important feature to which we want to draw the reader's attention. In the cases of double or multiple personality which have been reported in literature the mental wound formed has not been healed. The mental gap that separates the different personalities is not bridged over. In the interesting and possibly best observed case of double consciousness investigated by Professor James, namely, the Ansel Bourne case, the two dissociated personalities, primary and secondary, could not be run into one. "I had hoped," writes Professor James, "by suggestion, etc., to run the two personalities into one and make the memories continuous; but no artifice would avail to accomplish this, and Mr. Bourne's skull to-day still covers two distinct personal selves." This holds true in other cases of the same type. In the Hanna case, which may be regarded as the classical type of total amnesia and double consciousness, the gap separating the dissociated mental systems has been bridged over and the two personal selves have become synthetized into one personality. This synthesis is not only of practical importance, on account of the complete cure that has been effected, but is also theoretically of great value. It demonstrates the composite character of human personality. "Observation," says Ribot, "does not show that this chasm is ever bridged by direct recollection. Thus two suppositions are possible: either the registration of anterior states is effaced, or the conservation of

anterior states persisting, their power of revivification by association with the present is destroyed. It is impossible to decide arbitrarily between these two hypotheses.'' In the light of the experimental work and results obtained in the Hanna case the decision must be in favor of the theory of subconscious persistence of the apparently lost memories. The two personalities are but functionally dissociated and can by various methods be brought together, ''the chasm can be bridged by direct recollection,'' as it has been effected in the Hanna case.

The deepest interest of the case lies in the fact of complete dissociation and total loss of mental content up to the time of the accident. The dissociation observed in the cases of double or multiple consciousness is partial in character, the patient having lost but a portion of his life experience. This loss, as it has been pointed out before, may cover a period of a few hours to several years; or it may affect the whole of the patient's life experience, involving not only the associations of his social relationships, such as the recognition of his family, of his friends, acquaintances and all his relations with them, but it may also involve his automatic psychomotor activities as well as habits and even his perceptual activity. In nearly all the cases of double or multiple consciousness the patient's most fundamental associations are preserved; they appreciate time, know spatial relations; they can walk, run and handle objects, know how to dress, to eat, know the use of objects of every-day life experience; they, moreover, can talk, can understand speech and they rarely lose the knowledge of reading and writing. Not so was it in the case of Mr. Hanna; not only was the knowledge of his social relationship gone, but all his automatic, instinctive and habitual psychomotor reactions in response to stimuli coming from the external environment, all were swept away by the catastrophe of the accident. He was an infant, a baby newly born, or like a visitor coming from another world. He knew

neither objects, nor space, nor time; knew no speech; neither could he understand the meaning of gestures; he knew nothing of food, nor did he understand the manner of feeding; he could not walk, nor could he grasp objects, nor adjust himself to the perception of size, volume and distance. In short, the case is one of total loss of memory. Mr. Hanna was like an infant that had just opened his eyes to the light of day. In fact, after he had acquired some knowledge, he was for some time under the impression

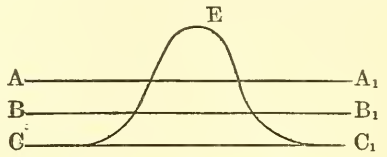


Fig. 16.—Normal mental content.

that people come into the world fully grown, like himself. It is from the little ones that he has learned the course of growth in this world.

The Hanna case, then, presents a complete obliteration of all psychomotor acquisitions, and as such may be regarded as a case of what may be technically termed total amnesia. A graphic representation of the various forms of loss of memory, or of amnesia, in relation to this point will perhaps best bring home to the reader, at a glance, so to say, the depth and extent of dissociation observed in the

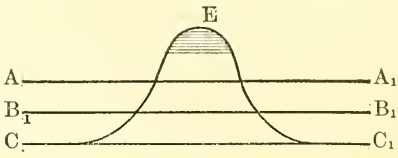


Fig. 17.—Partial loss of conscious content

Hanna case as compared with other cases of the same type of double and multiple personality less complete in the character of the dissociated content.

Let AA_1, BB_1, and CC_1 represent the habitual, automatic, instinctive, and subconscious reactions of the patient's life. Let the area of curve E represent his fully conscious activity of his social relationship; then, under the influence of hurtful stimuli, the E content may be affected. The loss may be represented by shaded lines of a portion of the total area of E, according to the depth and extent of the loss.

Now in the Hanna case the loss went far deeper; not

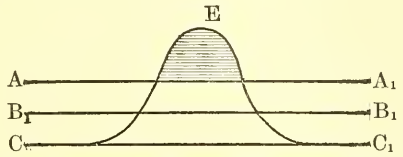


Fig. 18.—Total loss of conscious content.

only the curve E but also the AA_1, BB_1, CC_1, portions became involved.

The Hanna case is of special value, if only from the stand-point of the possible morphological and functional modifications that may take place in the personal self. The study of the case is also of interest, if we compare the mode of re-education of such cases of total amnesia, or of "adult infants," so to say, with what is observed in the

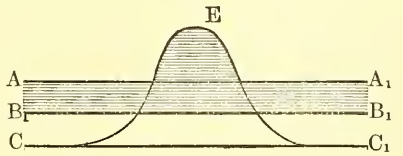


Fig. 19.—Total loss of conscious and subconscious content.

gradual development of infant life. We may compare the re-education of Mr. Hanna in the secondary state with the acquisition by children of psychomotor reactions and asso-

ciations in response to the stimulations of the external environment and their adaptations to the external objects of their little world. We can see reflected in this strange case of Mr. Hanna the growth and development of spatial and temporal associations and reactions observed in infants —their learning to walk, to talk and their acquisition of knowledge and adaptations by imitation. It is also of interest in comparison with the learning of estimation of spatial relationship in the case of the blind operated for cataract of the eye, and in the case of the education of the blind, deaf and dumb, such as that of Laura Bridgman and Helen Keller.

We must, however, keep in mind the fact that in cases of functional dissociation, as presented by double and multiple personality or in total amnesia, such as the Hanna case, the relation to child development and education of the defectives is but analogous. In the defectives and in children the psychic content is *absent,* while in the functional cases the content is *really not absent, but present subconsciously.*

CHAPTER II

THE BIRTH OF THE NEW PERSONALITY

About seven o'clock in the evening of April 15, 1897, Rev. Thomas Carson Hanna, while returning home in his carriage from the town of M., attempted to alight in order to adjust the harness, lost his footing and fell to the ground head foremost. He was picked up in a state of unconsciousness by his brother, who, for some minutes, vainly endeavored to restore him. His eyelids were closed and his breathing was faint. Not the slightest movement was noticeable, and, but for the feeble respiration, life seemed extinct.

Mr. Hanna was removed to the house of a friend and medical aid summoned. For a period of about two hours he lay in an unconscious state. Three attending physicians regarded life as almost extinct and heroic means of restoration were adopted. Large doses of strychnine were hypodermically injected. Although no time was lost in speculative diagnosis, the probability of a most serious organic lesion was determined upon.

Finally Mr. Hanna began to move, then opened his eyes, looked around, moved his arm, then sat upright in bed, arose, reached toward one of the physicians and attempted to push him. Thinking the patient in a state of delirium, and fearing an attack, they seized him and attempted to push him back upon the bed. Mr. Hanna resisted vigorously and a struggle ensued, in which the three physicians were considerably worsted. The Rev. Mr. Hanna is normally a strong man, but on this occasion his strength seemed herculean. He was finally overpowered,

securely bound with straps and placed in bed. He lay perfectly quiet and made no attempts to release himself.

At the suggestion of a newcomer, Mr. C., the straps were removed. The patient remained quiet and made no further attempt to rise.

Although Mr. Hanna's eyes were open and clear and he was looking about him in an apparently curious and inquisitive way, when spoken to he did not understand the meaning of the words. It was not only that he had lost the faculty of speech so that he could not answer the interrogations put to him, but he had also lost all power of recognition of objects, words and persons. He was in a state of complete mental blindness.

Although the functions of the sense-organs remained intact and the peripheral sensory processes remained normal, so that he experienced all the sensations awakened by external stimuli, yet there was a loss of all mental recognition and of interpretation of incoming sensations; all recognition of the external world was lost. Stimuli from without acted upon his sense-organs, gave rise to sensations, but perceptions and conceptions were entirely absent. The man was mentally blind. He could feel, but could not understand. He was as a newly born infant opening his eyes for the first time upon the world.

The world was to Mr. Hanna but a chaos of sensations, not as yet elaborated and differentiated into a system of distinct percepts and concepts; neither objects, nor space, nor time, in the form as they are presented to the developed adult mind, existed for him. So totally obliterated from memory were the experiences of his past life that even the requirements of the simplest mental processes by which the appreciation of distance, form, size, magnitude is acquired, were effaced from his mind.

Movement alone attracted his attention. He did not know the cause and meaning of movement, but a moving object fastened his involuntary attention and seemed to

fascinate his gaze. He made as yet no discrimination between his own movements and those of other objects, and was as much interested in the movement of his own limbs as in that of external things. He did not know how to control his voluntary muscles, nor had he any idea of the possibility of such a control.

From the more or less involuntary, chance movements made by his arms and legs, he learned the possibility of controlling his limbs. The full voluntary power over his muscles he only learned from instructions by others. He could not co-ordinate the movements of his legs, hence he could not walk.

Unable to discriminate between his own activity and that of others, the world was not as yet differentiated into the objective and subjective, and he had no idea of ego activity. Movements had for him no differential coefficient—all were alike to him. The three dimensions, length, width and depth, were as yet not appreciated; they really did not exist for him.

Although impressions were received by his sense-organs, still the only sensations prominent in his mind were darkness, light and color. Everything was close to his eyes,—objects near and far seemed equally distant.

He did not have the least conception of the flow of time,—seconds, minutes, hours were alike to him. His knowledge and adaptations to environment were so completely obliterated that, like an infant, he most unceremoniously responded to the calls of nature.

The sensation of hunger, though present in all its intensity, as we afterward learned, could not be interpreted by him, and he certainly did not know how to appease it. When food was offered him he did not understand the purpose of it; nor when it was placed within his mouth did he know how to masticate and swallow it. In order to feed him, fluid nourishment had to be placed far back into the pharynx, thus provoking reflex swallowing movements.

The sensation of hunger awakened in him an indefinite feeling of discomfort which he could not comprehend or intelligently express. When food was offered to him he made no effort to receive it; when placed within his reach, he did not endeavor to chew, or swallow it. This seeming rejection of food led the attendants to believe that the patient had no desire to eat. It was only when food was forced upon him and thrust far back into the pharynx and reflex swallowing movements excited, accompanied by relief of his restlessness, it became evident that he was really hungry. It was in this way that Mr. Hanna for the first time realized the purpose of food and learned the way of taking it.

CHAPTER III

EDUCATION AND GROWTH OF THE NEW PERSONALITY

LIKE an infant, he did not know the meaning of the simplest words, nor did he understand the use of language. Imitation was the factor in his first education. He learned the meaning of words by imitating definite articulate sounds made in connection with certain objects and activities. The pronunciation of words and their combination into whole phrases he acquired in the same imitative way. At first, he simply repeated any word and sentence heard, thinking that this meant something to others. This manner of blind repetition and unintelligent imitation was, however, soon given up, and he began systematically to learn the meaning of words in connection with the objective content they signified. As in the case of children who, in their early developmental stage, use one word to indicate many objects entirely different in their nature, but having some common point of superficial resemblance, so was it in the case of Mr. Hanna: the first word he acquired was used by him to indicate all the objects he wanted.

It goes without saying that the very first objects for which he felt the most intense interest were those that had relations to the elementary and at the same time indispensable sensation for the maintenance of life, namely, hunger. Words denoting articles of food were the first he acquired for the purposes of intercommunication with his environment.

The first word he learned to know and to repeat was "apple." An apple was given to the patient when he was

hungry and the attendant, pointing to the fruit, pronounced the word "apple" several times with great emphasis. The patient repeated "apple, apple," but did not grasp the import of the word as relating to this one particular object. To him "apple" was in a vague way associated with hunger and craving for food. When later he again became hungry, he called for "apple," but when the fruit was brought to him he rejected it in disgust. He wanted some of the other articles of food or dainties that had been given to him, but which were not "apple." This apparent contradiction was taken by those about him as signs indicating capriciousness and perhaps mental derangement. On several occasions the unfortunate young man was obliged to remain without food, since instead of the dainties craved for, the undesirable "apple" was constantly thrust before him. He was disgusted at incessant reappearance of the same fruit.

At first Mr. Hanna had no idea that there were terms for all classes of objects; he did not know abstract and universal terms. He could not understand the use of words denoting quality such as "whiteness."

He had no idea of words having a universal significance, such as food, fruit, etc. He learned only the names of particular objects. He did not seem to learn words of universal import, words which would have been of far greater use to him. "When they had given me three or four things," he told us afterward, "I began to think there were other things to eat, too, and *I wanted to learn the names of all those things.* If I had only known the word 'food' or 'eat' or any of those words."

Although Mr. Hanna was mentally blind and had lost all knowledge formerly possessed, both in relation to the external and internal world; although he was mentally reduced to a state of infancy, strange to say, his intelligence remained intact. His curiosity for acquiring knowledge was keener than ever, and the use made of his acquisitions was

truly astonishing. His faculty of judgment, his power of reasoning were as sound and vigorous as ever. The content of knowledge seemed to have been lost, but the form of knowledge remained as active as before the accident and was perhaps even more precise and definite.

It is difficult to comprehend how a case of such a nature could possibly occur, and indeed it almost appears to be miraculous, but, as the reader will see from our further discussion, such a case may be readily analyzed and explained.

Among his earliest experiences was that of noting means of communication between persons. He was greatly interested in the fact that in response to uttered sounds certain actions were performed by others. He attempted to obtain similar results by uttering meaningless sounds and gibberish. The young man finally came to the conclusion that definite sounds brought about definite actions, and he became more eager to learn them. His knowledge was gained by the endeavors of those about him who constantly tried by objective demonstration and explanation of words to assist him in his eager efforts to learn. He was very anxious to gain the knowledge of language necessary for communicating his wishes and expressing his wants to others. His desire to acquire the use of words and phrases was based principally upon his observation that those about him, by making movements of the lips and producing sounds, elicited from others certain responses which were frequently followed by definite actions.

Finally Mr. Hanna in a very short time acquired a number of words sufficient to express his wants to others, and he made the best use of his limited vocabulary. A word once heard seemed indelibly impressed upon his mind, and he never again forgot it. It was really surprising to find a man starting in life with absolutely no vocabulary, with no means of communication and with no mental material, acquiring in the course of a short period a familiarity with

language sufficient for carrying on intercourse with others, and with powers of imitation so keen as to enable him to follow correct grammatical forms.

Mr. Hanna made no errors in pronunciation; used the tenses correctly, and in forming sentences combined the words in their proper order. He had great difficulty in the acquisition of the use of adjectives and abstract nouns. When a word was told to him, and the object shown, he always associated that name with the object, but did not as yet understand names signifying the qualities of objects. For instance, Mr. Hanna had learned the meaning of the word signifying the color white, but not that signifying black. Now it happened that he was shown a black hen and the name was told him. The patient thought that "black hen" was the name of the bird. The next time he saw a hen of white color, he remarked that there was another "white black-hen."

The way in which he learned the use of adjectives will be made clear by the following example: The difference between "good" and "bad" was made clear to him by the objective demonstration of good and bad food. When Mr. Hanna first ate an apple he devoured all of the fruit, including core and stem, but the next time he was watched and the core was taken from him. The attendant, making a wry face, said repeatedly, pointing to this indigestible part of the fruit, "Bad, bad." The patient thus realized the meaning of these abstract words. At another time, to further emphasize the meaning of "bad," and principally to have a word of caution against harmful objects, Mr. Hanna, when hungry, was given a piece of soap; thinking it food, he put it into his mouth. The soap was snatched away from him with the exclamation, "Bad, bad!" Thus he acquired his first knowledge of the difference between good and bad, and thereafter it was applied to different objects under many other circumstances and conditions.

As an illustration of how abstract ideas, which were complicated and had no relation to objects, but rather to activities, were acquired, we may give the following incident: It was, of course, important to acquaint the patient with the meaning of the word "careful" in order to avoid harmful situations, but it was most difficult to convey the exact meaning of this word, and it could not be illustrated objectively. Now it happened that an attendant bringing him a glass of water upon a tray almost upset the contents. Someone exclaimed, "Be careful, be careful!" Mr. Hanna, noticing the effect, immediately grasped the significance of the phrase. Thus, knowledge of words in their abstract meaning and their wide application was gained.

The fact that great difficulty was experienced in conveying to the patient's mind the meaning of abstract words in no way indicates his dulness of comprehension. On the contrary, his mind was as keen as ever and always on the alert. The intense activity of the patient's mind and the great power of his reasoning were well illustrated by his ability to make the utmost use of the knowledge he gained.

It is highly instructive to follow Mr. Hanna's acquisition of knowledge of space. Immediately after the accident he was found to have no knowledge of space whatever. He possessed, however, sensations of color, of light, of shades, of darkness, but the concept of space was not present in his mind. He had no idea of distance and made efforts to grasp far-off objects, such, for instance, as ornaments and pictures that were beyond his reach.

To illustrate the total lack of appreciation of distance, we may mention his effort, one day while still confined to his bed, to grasp a distant tree perceived through the window. The tree was to him an object of interest, presented to his eye as a series of sensations attracting his attention, and he naturally endeavored, by reaching out his hand, to get hold of it. Like an infant, he would not have hesitated to grasp the moon or take hold of a star.

L. of C.

Mr. Hanna, in the early stage of his secondary life, having as yet no perception of distance, had the sensation that everything was "close" to his eyes. The sense-elements, however, that go to make up the concept of space were present. Thus, he had some appreciation of room, volume. Shortly after recovering consciousness, with his eyes still closed, having none but internal sensations, and even of these no proper perception, he still had some idea of volume. He wondered how much room there could be, although he could not clearly formulate this idea. From constant efforts to reach objects, and from the many failures attending his early attempts, he gradually gained an idea of distance and learned the relation of objects to each other in space.

Mr. Hanna seemed to acquire the knowledge of space along with that of movement. At first he was not aware of the fact that he could control his muscles. He could not adapt and co-ordinate his movements to seize near and distant objects. He knew not how much force to put forth,—how much energy to exert to grasp objects of various size and weight. By daily effort, however, at first rather involuntary, by automatic movement and by constant exertion, the voluntary gradually emerging from the involuntary, Mr. Hanna learned to grasp objects—to feel and handle them—and thus the kinæsthetic sense was trained. The ideas of space and movement were so interlaced that their development seemed to go hand in hand.

The primitive elements in his space knowledge were sensations of volume in a rather vague manner, and along with them also the sensations of movement; Mr. Hanna seemed to have developed the two simultaneously. Thus, at the beginning, he wondered how much room there was, and the involuntary movements of his hands gave him the feeling of how much more, how much expanded that movement could be. Once an involuntary movement of his limbs occurred he learned to repeat it voluntarily. He took pleas-

ure in the exercise of his muscular apparatus. As in the case of the infant, the involuntary chance movements give rise to a process of auto-imitation, the same movement is repeated over and over again with great delight, and afterward this process is amplified and varied. So it was in the case of Mr. Hanna. He took delight in repeating his movements many times over, and then amplified and varied them. When a chance movement of his arms occurred, he took great pleasure in repeating it, and then went further—he extended his arms, moved them in different directions, and thus, in this uncertain, involuntary, indefinite way, gaining more definitely the idea of volume and movement. The apparently senseless excursions of his arms alarmed the physicians and attendants; he was thought to be suffering from delirium.

Along with his own spontaneous efforts at education, those about him constantly endeavored to teach him. We must, however, call the reader's attention to the fact that although Mr. Hanna was unable to make voluntary adaptations in his movements to his environment, although he had to be taught to walk in order to reach an object, still under strong emotional upheavals he made correct movements of adaptation which he could not afterward voluntarily repeat. This fact was clearly revealed shortly after he regained consciousness, when he, supposing himself attacked, was able to make efforts of resistance and correct co-ordination of movements. However, this was but a flash that appeared under special conditions,—a flash, the general form of which he could recall and give an account of after having acquired means of communication.

His own movements, as well as those of objects and persons about him, especially attracted and interested him, as is the case with children and lower animals. The movements of his own limbs greatly aroused his interest when after the accident he first gained consciousness and opened his eyes; it was the sensation of movement that first at-

tracted his notice. The very first sensation he experienced in his new life was the movements of his chest in respiration. He first learned of voluntary movement by noticing that the rapidity of respiration and the concomitant rise and fall of the chest-wall were under his own control.

Mr. Hanna did not originally appreciate differences in the cause and form of movements. Movements, voluntary and involuntary, made by himself or occurring in the external world, were of the same character to him. Thus, when he noticed an attendant walk across the room, he identified the movement with that of his own. He did not yet discriminate between his own movements and those outside himself. He gradually learned the difference between these two kinds of movement by the observation that he had control over his own movements, but not over those of others. This also was a basis originally of differentiation between himself and the external world.

In the case of time as in that of space Mr. Hanna lacked at first all knowledge. The flow of time and the various parts of the day were at first appreciable to him only by the changes from light to darkness. Even after gaining more knowledge, he still measured the intervals rather roughly by the succession of meals.

After he had advanced so far in his knowledge as to know of objects and to localize them more or less roughly in space and time, he still was unable to distinguish between the animate and the inanimate. It was only later on, when he had acquired some knowledge of voluntary movement, that he could discriminate between the two. At first movement in general, and later spontaneous movement, became to him the criterion of life. For some time a *moving* thing was to him identical with a *living* object. Branches and leaves of trees, because of their occasional movement, he regarded as animate, and later learning that spontaneous movement was peculiar to the animate, he wondered that branches and leaves could move.

He did not analyze a complicated object into its different qualitative components, simply because he lacked the knowledge of the individual constituents. This was well illustrated by the following amusing incident: He saw a man sitting in a carriage and driving a horse, and observing that all moved together, he regarded them as one object, one living being. Later on, learning that there were various kinds of beings, he thought a man mounted upon a bicycle was a kind of man different from those he was accustomed to see. When, however, he learned to know the objects separately, he gained the proper conception of each.

When he acquired knowledge of the existence of living beings, it was still hard for him to realize what persons really were in contradistinction to other living beings, and when he learned to differentiate the two, it was difficult for him to realize that he, too, was a person. Persons, he thought, moved about, while he was lying in bed; then, too, they were dressed, while he was not. The manner in which he learned that he, too, was a being like other people is interesting. Mr. Hanna, pointing to himself, asked an attendant, "people? people?" meaning to inquire whether he himself belonged to the same beings, and receiving an affirmative reply, he understood that he, too, was "people." Here again his imitative proclivity manifested itself in that he wished to be dressed and appear like other people. He was anxious to feel that he also was a person. To emphasize the fact to himself and others, and at the same time thinking this condition indispensable for personality, he was desirous of appearing dressed like those about him.

It was difficult for Mr. Hanna to realize that, although he was a person, still his personality differed from that of others. It was hard to convey to him the different shades of meaning of words that indicate consciousness of individuality. The ego or self-consciousness came rather late in his present mental development. He was certainly con-

scious and the activity of that consciousness was very intense. He was most eagerly taking in and elaborating impressions coming from the external world, impressions that were to him entirely new; still, the consciousness of self was for some time absent. It was only after prolonged efforts on the part of his teachers that he could grasp the meaning of words conveying the idea of personal relations.

Before Mr. Hanna had acquired a more or less extensive vocabulary, an attempt was made by the attendants to convey to him the meaning and distinction between the concepts "mine" and "yours." This was done in the following way: A watch was placed in his hand, and a pin held by the attendant. The latter, then pointing to the watch, said and made Mr. Hanna repeat, "This is mine." Then in a like manner, pointing to the pin, he instructed Mr. Hanna to say, "This is yours." He could not, however, comprehend the meaning, and all efforts in that direction were in vain. He could easily repeat the words, but found it impossible to grasp their meaning. It was only later on in the course of his mental acquisition that he realized the significance of words indicating the various shades of personal relationship.

Associated systems of ideas of a more or less fixed and definite nature characteristic of the developed mind were wanting for some time after the injury, and there could therefore be no possibility of self-conscious individuality. When he acquired more knowledge of the external and internal worlds, when his vocabulary became more extended and he could come into communication with persons and his environment, it was only then that, after great efforts, he succeeded in grasping the meaning of words that express personal relations and the significance of individuality.

There is, of course, no need of expanding on the fact that Mr. Hanna had no idea of sex. In fact, even when he was well advanced in his mental development and enjoyed free communication with others, he still had no idea what-

ever of the sexual difference between men and women. Even when he was so far advanced as to discuss difficult and complicated religious questions, he still had not the least notion of sexual differences and reproduction. The first knowledge acquired of differences in sexual structure was the information given him in the distinct formation of the two sexes of the floral world. Even then, however, he knew only of the differences in sexual structure and function in the vegetable kingdom. The absence of anything pertaining to the amorous was so pronounced that he could not understand the different conventional relations between the sexes, or, as he at that time expressed it, between the "two strange kinds of human beings." He could not understand why feelings of gratitude, friendship, likings, could not be openly and frankly expressed by caresses and kisses, in his relations toward both sexes alike.

Although he was lacking in all other forms of knowledge, it was of great interest to find that Mr. Hanna from the very start had a keen appreciation of the harmonious in general, and of music in particular. As soon as he learned to know and recognize objects and pictures without being instructed as to what was beautiful and what was ugly, he showed at once his likes and dislikes in relation to them. In fact, we may add that his sense of appreciation of the beautiful and his disgust for the ugly was even far stronger and keener in this state after the accident than in his normal condition before it. So keen was his appreciation of the beautiful, in music especially, and so remarkably strong were his imitative powers, that he learned to sing hymns and play instruments in so short a time that the acquisition seemed almost miraculous. Having had no familiarity with the banjo before the accident, he acquired the skill of playing it in but a few hours. A friend spent an afternoon with him in teaching him to play the banjo, and was astonished at the remarkable aptitude of the pupil who in a few hours learned to handle the instrument with the

facility of an experienced player. Mr. Hanna showed the same remarkable aptitude in acquiring the technique of the piano. He soon repeated with correctness several selections on the instrument after having only a few times carefully watched their execution.

CHAPTER IV

FIRST IMPRESSIONS

To make clear to the reader the state of Mr. Hanna's mind, we bring here verbatim answers to our questions put to him some six weeks after the accident, when his secondary personality became sufficiently trained and educated to give an account of what had taken place since the injury.

We had frequently to simplify and elucidate our questions, as Mr. Hanna often failed to understand words and phrases. Mr. Hanna's talk is somewhat incoherent, due to scantiness of his mental content and of his newly acquired vocabulary.

Q. We want to get from you an account of the very first things you remember of your life? A. That would be hard to do orderly. I told you before about that. I woke up, and it was at first only wonder how far anything could be. Of course, I did not move, and did not see; just in my mind measuring how far there could be room or space. And while I was thinking, I noticed this movement that I had when I breathe, and then, when I would think and notice that breathing, it would be more slow and irregular; and so I found when I would think and watch that it would change and that I could make it slow or fast, and I began to breathe very fast. They have told me since that time that that was what frightened them first. But it was just to see how fast I could breathe, and I was breathing very fast to see how it would seem. And all at once my eyes opened. I don't know how it came. I was

breathing very fast, and my eyes just came open, and then I looked all around at everything, and found that my head would turn, too, when I would try to look.

Q. When you opened your eyes, did you have an impression of any kind or was your mind a blank? A. I don't know that there was anything. My eyes just were so confused by everything that I could not tell one thing from another.

Q. Then everything looked alike to you? A. Just like one picture against my eyes. If now I could have a great picture against my eyes, it would look like that.

Q. Did you see objects, or see colors? A. Colors. There was not anything like thickness; no distance; only colors.

Q. Did you see straight lines, squares? A. It was only darkness and lightness and colors.

Q. You can see the straightness of this pencil (placing a pencil at some distance from the patient)? A. Yes.

Q. Did you see anything of that kind? A. No; they were just alike; all was one thing. I would not know whether the pencil was on your face or not. It was all one thing—close to my eyes—just like a painting.

Q. What was next after you noticed that you could turn your head? A. When I would turn my eyes very far, and see all about this picture, I noticed my head would turn, too. Then I began to roll my head very fast, to see how hard I could turn it. Then I would turn that hand. Then I threw both hands. They say that was what frightened them worst of all. Everything in the room was all still and quiet. I wanted to see how much I could move my hand. Then there was something here that changed, that moved. Of course, I know now what it was. I thought it was something that my hand had done that made it move. It was really Dr. St——n, near the door. I put out my hand and tried to move it, but found that I didn't touch it; I got up and went farther and farther to make

it move. The movement surprised me. I thought my hand must have done it, but I did not move my hand any then. That was the first time I separated my movement from that of others, when he moved the first time without my moving him. It was all very strange. It was such an experience. The first I knew of external movement at all was when he moved, and then I didn't have it clear in my mind. The first that I was really sure that there was something beside me was when Dr. O. jumped on me. Then I was sure there was something against me.

Q. But before you thought it was yourself? A. Yes. But I thought I didn't know it all. I thought there must *be some part that I didn't know;* but it was very hard, because I was so much surprised at everything each second that I wanted to think all about that—what it could be and what it could not be; and then the next second there would be something else I wanted to think about, and it was very hard to get all these things in my mind, and to think of them orderly after they jumped at me.

Q. Did you know why he jumped on you? A. No; I did not have time to think of those questions. I would now think of those things. I knew I was trying to reach out, and he was trying to push me back, and I saw that Dr. O. was the only one, and I could not really make out that there were many of them in the room. It seemed to me that after all it was all one thing that was against me, and that they were all like a part of me, and when he came at me, all the others came, so that I could not make them separate. So I thought by holding him down it would stop everything. They had it very easy the first time to put me on the bed. I was close by the bed. I did not know how to use my legs or arms at all. They could put me down, because I could not use my arms. I very soon landed on the bed, with them on me.

Q. How did you learn to use your arms? A. I could move around in different ways. I found when I had my

knees and arms under me, I could get up then. I first pushed Dr. St——n back and then pushed Dr. O., and got him on the bed. Mr. Sh. I did not touch. He was pushing on my back. He was a very tall man. Mr. M., the other man, was a small man. He got on my head. That was afterward. We were lying still. There I was holding Dr. O. down, and almost afraid to move, because he might get up, and the other men were on me. And they did not try to do anything; they did not try to get me back to bed.

Q. Just to hold you still? A. I suppose so. I was willing to be still. They got this other man, and as soon as they got him, they tried to push me off Dr. O., and they got me off. And I saw it was not any use to try to do anything, and so I went back to bed. But that was not enough. They tied my arms, even when I had gotten away from them. I was very much disappointed then; thought it was not any good to try to do anything. But this other man came—that I found out afterward was Mr. C.—he came late at night into the house and he came and saw that the rope was hurting one of my arms. It was very tight, and so he begged the doctors to take it off, and they would not. At last, he said he was going to take it off himself; he was going to take the responsibility on himself. I remember those sentences. (The patient could remember the words, but did not at that time realize the significance of the sentences.)

Q. Do you remember the sentences? A. Yes; I had seen that when one of them would make these noises (patient refers to speech) that another would know just what to do; so I saw by that they could understand each other, and I thought it would be good for me to learn, and so I tried to learn. I knew then that they had some way of communication, of talking; and I knew that Mr. C. was very kind, and I thought these others were bad. And so I wanted to talk to him.

Q. How do you know he was kind? A. He was trying

to take these off, and the doctors would come and take his hand away, and at last, when they were out of the room, he took them (ropes) off.

Q. That rope was painful? A. Oh, yes; I could not lie any way except with my face down. I could not turn over on either side. My arms were very tight behind me.

Q. Afterward they took off the rope and let you free? A. Yes; then I could lie back. I was content to lie then. They had stuck a needle (for hypodermic injection) in my arm and injected in my arm. I was glad to lie still, if they would let me alone.

Q. Did you feel any pain? A. No.

Q. You felt that (hypodermic) needle? A. Oh, yes; I felt that was sharp.

Q. What was the first thing you learned; do you remember? A. You mean the first words? The first thing I did was to repeat aloud whatever sentences I had heard people say, that I could remember; every one that I could remember. I did not know anything what they meant. I thought perhaps that I could learn to talk that way by saying what other people said.

Q. You repeated what they said? A. Yes; I repeated them without understanding the sense. I would say the same as they did. Anywhere in the house that I could hear words I would say them afterward. But it did not do any good; I could not learn to talk at all. So Friday afternoon (the day after the accident) I stopped talking —saying those sentences—because I saw that I could not learn to talk any better that way. And I was feeling then very discouraged, because people laughed at me.

Q. Why were you discouraged? A. Because it did not make any difference to them (to the people). Sometimes the sentences, I suppose, would happen to be suiting, and then they would be very much surprised at what I said; and again they would see that it was nonsense, I suppose, and they would not pay any attention to it, except to go

and tell the doctors what I said. That was about all; and Friday afternoon I gave up.

Q. Can you recall any sentences which you at that time repeated without knowing the meaning of the words? A. Mr. S. said words like these: "Do you want me to come?" That is the best I can remember. And Dr. O. said: "Course, you fool."

Q. But you did not understand what it meant? A. No; the accident, they tell me, happened Thursday night, and I began to learn to speak late Friday afternoon.

Q. How many sentences had you repeated? A. I think as many as thirty or forty.

Q. For how many days? A. For two days. Saturday before noon was the first time that I learned any word with its real meaning. Saturday—before dinner. I could only tell times by daylight and the lamplight, and by the three meals. That is all I knew about time then.

Q. When you learned the meaning of the first word were you still repeating sentences? A. Oh, yes; I had begun to repeat sentences again Friday night and Saturday morning; but Friday afternoon and evening I had stopped, because it did not seem any good to me at all; and then I thought it was very foolish to lie there and do nothing, and not work at all, to have people understand me. And so I began again to repeat these sentences. And then Saturday morning I felt a great deal worse about it, and so I began to try to act as if I wanted to talk all I could, and that is the time that Miss A. saw what I wanted to do. She got an apple from the table, and held the yellow apple up to me, and said "apple" plainly three times.

Q. And you repeated it? A. Yes; she made the motion very clearly with her mouth and I said it after her; and she showed me it was all right.

Q. How did she show it? A. She smiled, and nodded her head.

Q. Did you understand? A. Yes; I could tell by the

motions people made to each other; the way they nodded and the way they would motion with their hands. I do not think it was later than about Friday afternoon or Friday noon when I could understand almost everything people could do when they would come, and I think I could after a long time have understood their language that way; but I think it would have taken a long time, because those people at that time seemed to use their hands and their face a great deal more than you do, or people do now. I don't know why it was. (His attendants and visitors were under more than usual excitement.) Mr. Sh. more than all; his hands and his head would be going all the time.

Q. How did you learn to know distance? A. A picture I saw across the room did not seem farther than a clock near by. So I thought I would reach out and feel it, but I could not reach it, and I reached farther and farther. I did not want to get up any more, because I had found they did not want me to get up; and so I thought I must not now. And so I just reached as far as I could. And even after I knew something about distance, I stretched out my hand to reach distant things. But the greatest surprise of all was the looking-glass which they gave me. That was just after I reached for the picture. It was very strange. I thought I must be able to feel it the same as I could feel my face, or anybody's face—I thought I could feel in the looking-glass. It was all smooth, and that was what surprised me so much.

Q. Did you look on the other side? A. No; but I put my hand back, back. Then I turned it around, and could not see it. It was very strange to see it move when I would turn this. If I would turn it this side, the face would look as if it were turning that way. It was very strange. That was the greatest surprise I had during that day—was to understand the looking-glass.

Q. When was that? A. That was Saturday about noon.

Q. Did you understand then what it was? A. No; I did not. I thought there must be some way of putting the picture here. I did not know it was my face. If I had known it was my face, it would have been different.

Q. Did you reach any conclusion as to what the glass was? A. I thought it was some kind of a picture that could move.

Q. How did you learn the difference between a picture and a living human being? A. Well, they could move, and they had different shape, you know, from the picture. The picture was smooth, if you tried the picture.

Q. How did you come to know of pictures? A. They gave me picture-books.

CHAPTER V

FIRST IMPRESSIONS (*continued*)

Q. How did you know the difference between yourself and other people? A. When Dr. O. was there Thursday night, then I knew that there were others, but I did not know of myself. It was Sunday before I really could see persons, but I always thought I was something different, because people were always either standing or walking, and they were always dressed up, and I was not. I did not think I was a person at all until Mr. Sh. told me.

Q. Did you find any difference between yourself and other people? A. Yes, and that was why I began to think about it.

Q. Did you speak about it? A. Yes, I could speak several words then.

Q. How did you ask? Did you ask by words or by signs or gestures? A. I said "people"; that meant them all. Mr. Sh. told me that I was "people," and he told me I was a man same as he was; and I did not believe that. I began to ask him why I could not have clothes on like other people. That was after I had learned to talk a good deal.

Q. Were you afraid when someone put his hand on your face? A. Yes; I did not like it very much. That was what Dr. O. did first of all—put his hand right outside of my face, and I did not like it. Dr. O. was a big, heavy man; and of course it was not very nice for him to hit me that way.

Q. It was not because you were not afraid of the hand itself? A. Only that I did not want to have others do what Dr. O. did.

Q. When you saw your own hand, did you know that it belonged to yourself? A. Yes; because I could move this; I could control this.

Q. But you could not control the hand of others? A. I could move it a little.

Q. But others could move your hand, too? A. Not if I did not want them to. I could take it away and move it the way I would like. That was very easy to tell.

Q. You could tell simply by the control of the movements? A. Yes; my being able to move.

Q. But at the beginning did you know the difference between your hands and the hands of other people? A. No; *there were not any other people in the beginning.* But really there were so many things; it was really when I began to look at all these different colors separately, that I saw so much. It is now seven weeks, and sometimes I get a little doubtful about the order; that is, my mind is doubtful.[1] Next day, after the apple, I learned about the watch. I was just lying there very quiet, and Miss A. was sitting in the chair, and we were both very still, and she was watching me. My watch was up on the chiffonier, and she made that sound—tick, tick, tick, tick, tick—and I noticed it was just like the sound of the watch, and I said it afterward. I saw that that was what she wanted. She took the watch down and put it to my ear. Then she told me, "Watch, watch"—like that, as plain as she could say it. And then the next was to teach me that it was my own. She taught me that it belonged to me.

Q. Did you understand it? How did she say it? A. She said "Watch"; put it in my hand; made me take it. Then she taught me to say it was mine. That was very hard—the difference between mine and yours. She had a pin, and she said, "This is mine." She said, "This is mine."

Q. How did she show you it was hers? A. She said it

[1] The early experiences after the accident are vague; it was the infancy of the secondary personality.

three times, and then pointed to the watch in my hand and said it eight or ten times. She pointed to the watch in my hand and said, "That is yours," and she took my hand and made me point at her pin—some pin that she wears—and made me say, "That is yours"—her pin, the same as she had said about my watch. And then, after that, she went and told the others that I could learn words—any words that they would teach me. And so they all, at any time they were in the room, wanted to teach me something.

Q. What was the hardest for you to express? A. The hardest of all was to get them to understand that I wanted something that was very much like something I knew. For instance: I was very hungry then, because they were afraid to give me anything, and I wanted to eat something, and the only thing I knew was "apple." But I did not want apple. It was hard for me to tell them. I had to say "apple," and said it many times, and when they would bring it and offer me a little piece, I did not want it. I had taken other things; they had given me toast and milk, but I did not know the names of them. After they had given me three or four things I began to think there were other things to eat, too, and I wanted to know the names of all those things. If I had only known the word "food" or "dinner" or "eat" or any of those words.

Q. How did you learn other words? A. The first I learned was, "be careful." I asked them what that meant —"be careful"—and they tried to tell me, but they had to give it up. They could not make it clear to me, until at last Miss A. was setting down a vase of flowers, which was very full of water, and Mrs. C. told her to be careful, and I could see myself that it was in danger of tipping, and I could see what it meant.

(Father.) I made a special effort to get him to understand the idea of the pronoun. That was a hard thing. I had a good deal of an effort to teach him the meaning of pronouns. Instead of saying "Thomas" or "Tom," as

most of the attendants and visitors did, I tried to work into his mind the idea of the "I" or "you," and succeeded at last. (Mr. Hanna up to this time, imitating others, spoke of himself as "Tom," not understanding the use of pronouns.)

Q. How did you succeed? A. (Father.) There was no particular plan except to persist, and keep at it.

Q. How did you learn the meaning of the words "good," "bad," for instance? A. At first, when I would eat an apple, I would eat the whole of it—the core and the stem. The next time when I would try to eat the core, they would make a face and take it away. And then they gave me a cake of soap. I thought that was to eat and put that to my mouth; and they took that away, and said, "Bad, bad," and made a face, and that was how I learned the meaning of bad and good. The first adjectives I learned were the color of flowers. It was very hard for me to learn about "pink pink." I had to learn that pink was a color, and there was a flower called a pink. I could not understand how it could be a name and color, both.

Q. What was it you told me of the "white black-hen"? A. A hen of a black color was pointed out to me and called a black hen, and I thought that "black hen" was the name of the animal. At last they let the other chickens out later, and there happened to be a white hen, and as I knew the color white, I said "white black-hen." Then they told me that the name of the animal was hen, and black was the color.

Q. How did you learn the meaning of the word "color"? A. That was many days after. I had been walking around in the other rooms a good while, and then they asked me what color a flower was they had cut. It was a pansy, a very strange color. I had asked them what color meant. I said, "What do you mean by color?" And then they explained to me, "Red is color, pink, white, blue is color."

Q. How did you learn the meaning of the word "God"? A. Papa asked me if I knew about "God," and I told him "No," and about "Christ," and he named several of those names, and I told him "No"; and he could not explain it to me.

Q. (To father.) When did you first begin to speak to him of religion? A. (Father.) That was several days after the accident; I tried to find out whether the name "God," "Jesus," or "Christ" awakened in him any recognition, or were in any way familiar to him, but I found they did not awaken the least sense of familiarity.

(Mr. Hanna.) The greatest trouble in my understanding was, that I thought papa was talking about some person that I could see, hear, or feel. I did not have that idea clearly, and that was why I could not understand what he meant.[1]

Q. How did you go on with your learning of the words? A. That was very fast. Everyone would tell me words, and as soon as I had known some words I could begin to guess other words that they would use, and they would use the words I knew, and put them in sentences, and I used to enjoy more than anything else to listen, to hear them talking. Whenever there would be any word I would not understand I would try to think of any word just before it, or after it.

Q. When you saw for the first time your father, or mother, or Miss C., or others of your friends and acquaintances, did you have any feeling of ever having seen them before? A. No; I had to learn to know them all over again.

Q. Did you have any feeling of liking or attraction for your parents or Miss C. different than you had for others? A. No; the only thing I knew about father when he came was that everyone was waiting.

[1] Even at this time Mr. Hanna did not understand the concepts relating to religion.

Q. How long after the accident was that? A. (By father.) Just about thirteen hours.

Q. You say you noticed the anxiety of people around you? A. People were coming in and going out all the time, but they had been just people they had not looked for, or expected or waited for. I saw that by the way they acted that papa was someone that I ought to think a great deal about. This was the first feeling I had for papa. Everything that I did was what I learned from them; was imitation.

Q. How have you learned to read? A. Just by asking every word. Papa told me first. Jud. taught me the alphabet as far as *Q*, then he stopped for some reason. I don't know the alphabet now in order, except as far as *Q*.

Q. (To father.) How long did it take him to learn to read? A. A very short time. The first words were taken from Scripture and were mostly words of one syllable and two syllables, from passages that happened to be in the scrolls—that hung on the wall. I hung up one of the scrolls where he could easily see it. And then he looked over the scroll and recognized a few words that somebody had taught him. And I read it over to him, and he cut out one or two of the words that were familiar to him, and that gave him an interest in it at once, when he saw that I by looking at this printed page could repeat certain words from it which he had heard in conversation. That seemed to awaken a good deal of interest in him, and so he wished at once to read it. Then I pointed out the word to him and pronounced it for him, and he pronounced it after me, and then he seemed to memorize it instantaneously—almost as if it were photographed on his mind. As soon as I had read over the phrase once to him, and he had read it over once himself, he had that verse as a complete and permanent possession. So he learned what was on the page. I thought that would be enough for one day. We were very careful then to avoid crowding him. The next day we turned over

the page and took the next, and thus went on very fast. *He learned so rapidly in those days that it was almost miraculous.* In about a week he could read tolerably well; make out the sense of plain language; while he would sometimes stop with a very simple word—a word so simple that he would think he must surely have had it already, and we would stop him a little. But it was about a week before we began to be able to say he could read a little.

Q. Did he learn long words as easily as the short ones? A. Just about as easily.

Q. As to writing? A. He did not write in those days, except by way of copying, and he was inclined to print. He formed printed letters. Just imitated the letters he studied.

Q. How long did it take you to learn to write? A. I did not learn to write until Saturday, the 15th of May.

Q. Do you write now without help? A. Not all the letters. I have a copy. I have the alphabet written out so that I can look for any letter I do not know. I think I know about all of the small letters and about half the capital letters.

Q. How did you learn your relationship to your parents? A. Mr. Sh. explained to me that everything must have parents, and I could understand that Mr. and Mrs. C. were very different to their daughter and to their son from what they were to other people; and the best I had to explain it to me was when I went out of doors and saw little chickens with the hen. I could understand a great deal better what was meant. They told me it was a mother-hen.

Q. Have you no special feeling of love for your own mother? A. No. I had not seen my mother, in fact, for a long time after. And I could see mothers going by with little children, and taking such good care of them.

Q. Did you learn to play the organ or piano? A. Yes; Mr. Sh. taught me first to play one hymn, and J. taught me and W. did.

Q. How long did it take you to learn to play? A. I could play from the keys just the way Mr. Sh. did, very soon. After he had played it half a dozen times he would put my fingers on the keys and I played.

Q. Did you play it from ear? A. By watching.

Q. You repeated it once or twice, and then afterward it was correct? A. Yes; after a while I got it right.

Q. How long did it take you to correctly repeat the first air? A. Jud. taught me one or two chords. Then I said I wanted to learn to play; to learn the regular way. Then I sent W. for a hymn-book—it was in church. I began at the beginning and learned all about the notes. He told me all about the names of the notes, and staff, and I used to work sometimes several hours every day. I didn't get three sharps nor four sharps, so even now I can hardly play with those.

Q. They taught you the time? A. Yes; I think almost everything they taught me.

Q. What other instrument do you play? A. The banjo. They say I never touched the banjo before.

Q. How long did it take you to learn to play the banjo? A. Mr. C. said he could have taught me all he knew in one afternoon. He taught me in about an hour to play on the banjo; and this surprised me, because I have had to work so hard with the piano and the organ, and even now they say I do not play as well as I did before, without mistakes.

Q. How about the hymns? Did you find some of the hymns familiar when you heard them sung? A. I remember a good many of them now, but they were all new then. I do not know what you mean when you say "familiar."

Q. Have you heard them before, some time before the accident? A. No. They tell me there were some I did not care for before, but which I like very much now. I think that is very strange. They tell me also that I like to eat things I did not care for before.

Q. You think your taste for food has changed? A.

Yes; they tell me in some things it has changed; not in everything. I do not care much for meat now—only a very little meat. I used to eat meat three times a day, and large quantities of meat, too, and they say I used to eat a great deal of cake, and now I never eat a piece of cake except gingerbread.

Q. How did you feel when you first came out and saw the trees and grass? A. I wanted to reach out and feel the trees. I could not step off the veranda at all; I put my foot down; I did not know how far to put it down to reach the ground.

Q. Did you try to reach the distant tree with your hand? A. Yes. I stretched out my hand to touch the tree, which was far off.

Q. How did the heavens strike you in general? A. How did it strike me? (The patient did not understand the question. He associated the word "strike" with "hitting.")

Q. How did it impress you? A. I thought the heavens were hard, like anything else, like a wall or ceiling. I saw only different colors overhead. The sky looked like a ceiling. I could see when I was moved from one room to another that the sky would stay the same; it did not move.

Q. How did the stars impress you? A. They told me what a star was before I saw one.

Q. How did the sun impress you? A. It seemed like a lamp.

Q. You saw the train; how did that impress you? A. I had seen the electric cars before.

Q. And the engine on the train—did it frighten you at all? A. No; it surprised me very much.

Q. You didn't think it was alive? A. No. The strangest thing was bicycles. I thought a bicycle with a man on was a different kind of man; different kind of people, because I never saw a bicycle without a person on it. (Mr. H. meant by "never" the time since the accident.)

Q. How did you notice the difference between a thing alive and not alive? A. Because they move. It was hard for me to understand about trees. The branches and leaves were moving. I thought they were alive.

Q. What did you think of horses and carriages? A. I thought it was all the same animal. Then when I got out into the other rooms I saw wagons alone. I saw they were different. It surprised me a great deal to see trees and grass change so. People do not change so.

Q. How many people do you know now? A. I think about a hundred. I do not think I would know a hundred to know their names, but there are some I would see and speak to, when I would not know the names. (It was most interesting yet pathetic to see Mr. Hanna move about the streets of the small town among those whom he formerly knew and whom he used to greet cordially, now go along showing absolutely no recognition, no sense of familiarity of his former friends and acquaintances.)

Q. When you saw a baby the first time, how did it look to you? A. It was very funny to see such little people. I thought everyone became alive as a large man, and I thought I was only a few days old.

Q. You thought you were just born? A. Even when they told me I had lived twenty-four years, I thought I had always been of the same size. I thought I would just live a few days. I did not think I would be living after a few days. I was very much surprised when people told me I would live several weeks. I did not think very much about it. Another thing that was very strange was to find out that people lived so far away, and at first I thought that everybody I saw lived near my home, and I used to make them laugh when I would ask someone living at a distance to come in again in a little while, and I could not possibly understand how there could be so much distance. Father told me it would take about a hundred days, he thought, to walk right straight ahead, and even then there would be more

distance. I could not understand. He said that to ride over to M. in a wagon would take about sixty minutes. He had taught me the minutes on the watch.

(The following will give an insight into the condition of the patient's sexual feelings and the emotions to which they gave rise up to the time of the inquiry.)

In the course of our examination, the patient was asked the following questions:

Q. How was it with you shortly after the accident; did you feel more pleasant in the society of young women than in that of young men? A. Not for a good many days. I knew only that they talked differently and acted differently.

Q. Have your emotions since been awakened?[1] A. Not for many days.

Q. And now you feel you are in the ordinary way? A. Yes. (Mr. Hanna could not comprehend these questions, and we were obliged to put our questions in a simpler and more direct way.)

Q. Does it please you to see nice-looking women? A. Yes; anybody nice-looking.

Q. Does it make a difference whether you see a nice-looking man or a nice-looking woman? A. Well, of course there is a difference.

Q. Do you enjoy rather to look at a nice-looking woman than at a nice-looking man? A. I do not know; it does not make so much difference. If it is a picture, they must be very nice-looking to enjoy; but if it is a person, I like to hear the voice. The voices of women are softer and more pleasant to hear.

Q. Would you have any desire to kiss or embrace a woman whom you liked very much?[2] A. Yes, my mother or sister.

[1] Mr. Hanna did not understand the question.

[2] Mr. H. was engaged to Miss C., whom in his secondary state he did not know. We wanted to find by these questions whether any subconscious feeling of recognition and love could be revealed.

Q. Would you ever desire to kiss any other woman? A. No; I would not have any wish. (We learned later that Mr. Hanna was instructed by his father that it was improper to kiss or caress any woman other than his family.)

Q. Suppose you meet a nice-talking woman—she talks very nicely and has a very sweet and beautiful face; you are told not to kiss her, but do you have a desire to kiss her? A. No.

Q. No desire to embrace her? A. You mean to caress her? (Patient had not yet learned the word "embrace.") I would be willing, but was told I must not. They taught me that I must be different to Miss C. than to my mother and sister. When I was at Mr. C.'s I wanted to take Miss C.'s hand, but she said it was not proper. (Mr. Hanna, then turning to us, asked:) Do you think it is improper to caress? I should not see any harm in caressing either men or women, but they told me not to do it. Suppose that you did want to, can you think why it would be wrong? What is the difference? (We gave him an evasive answer.)

Q. Have you thought of how people come into the world? A. When I would say anything about how people were born, they would say I would know that some time. I then tried to find out something about that in books.

Q. From what book did you get information? A. Encyclopedia; at home. (Mr. Hanna often used the encyclopedia and dictionary to enlarge his store of knowledge.)

Q. What did you look up? A. I looked up anatomy, reproduction, etc.; anything that people cannot explain to me I look up in the encyclopedia or dictionary.

Q. Do you understand the meaning of the existence of men and women in the world? A. I do not understand that.

Q. Do you know their physical differences? A. There are many differences; I do not know them. I know more about flowers than anything else.

Q. But you say there are differences between men and women? A. Yes.

Q. What are they? A. Men are almost always larger and their faces are stronger, and they are not so gentle, and their strength is more, and they are shaped differently; their hands and feet are larger; but all these differences there might be between two boys, I should think.

Q. You say you read about reproduction; do you know what it is? A. Flowers have blossoms which will turn to seed and these reproduce flowers again.

Q. How is it with men? A. I do not know about that; I imagine it is something like flowers.

Q. You do not see the necessity of there being men and women? A. I do not understand it. I hope I will understand some time.

CHAPTER VI

BIOGRAPHY

The Rev. Thos. Hanna has a good family history, with no neurotic taint. Among his ancestors are men who have attained positions of eminence. The family history can be traced to a time dating almost to the arrival of the Mayflower. On the father's side, Mr. Hanna is of Scotch-Irish descent, on the mother's side he is English. His maternal grandfather[1] was a missionary—a man of genius and of energy of will. He became prominent as a writer in Oriental literature and also as the founder of extensive missions in the East. His maternal grandmother was a healthy, vigorous and energetic woman, and attained fame in the literary world. His paternal great-grandfather was a well-known writer in theology. His maternal great-grandfather was a surgeon of distinction and fought at Trafalgar under Nelson. His father is a man of good physique, healthy constitution, of high intellectual attainments, and possessed of a strong will and marked individuality. As a minister he leads a strictly moral life and is scrupulously conscientious in his actions.

He does not belong to the emotional type; he is rather quiet and stern. The mother is a perfectly healthy woman, a lady of a refined, kind and gentle nature. Mr. Hanna has three sisters and four brothers, all physically and mentally well. Among the near living relatives are men of prominence in the medical and clerical professions. There is no evidence of neurotic tendency in the lateral branches of the family.

[1] Adoniram Judson.

Mr. Hanna was born in the year 1872. All conditions at birth were favorable and normal. At birth he was well formed and proved to be a well-developed infant. His early infancy was free from disease; he suffered only from those ailments incident to babyhood. He began to talk at the age of eighteen months. He was not precocious; his mental and physical development was that characteristic of the average normal child. He showed a ready though not extraordinary facility of acquiring knowledge. He showed the usual interest in the sports and plays of children. He was rather quiet, though not of a shy and retiring character. He was not quarrelsome or mischievous.

Up to his eleventh year he showed no signs of illness. At the age of eleven he had a slight attack of malaria. From his eleventh to his sixteenth year we find him again free from ill health. At this time he suffered from an inflammatory condition of the gums. One thing is apparent in the life of Mr. Hanna, and that is the absence of any illness of a serious nature.

The young man had all the advantages of an excellent education. At the age of eight years he entered the public school, where he was a good scholar and regular attendant. At an early age he showed an especial interest in the study of languages and possessed a ready facility in acquiring them. Upon the return of his parents to Philadelphia he entered the Manual Training High School. High attainments in the latter institution gained for him a scholarship at the University of Pennsylvania. He was one of the best students at the manual training school. His scholarship admitted him to any department of the university. His preference for architectural work was largely determined by his love for the harmonious and the beautiful. His versatility is shown by the fact that he had been at one time a mechanical draughtsman, had done electrical work, and even spent some time as a carpenter. He was also employed as a telegraph operator in the ticket office and other

departments of the railroad. Finally he passed examination as an architect. He was also a writer for a Philadelphia journal.

Mr. Hanna was fond of music and showed a good deal of talent in acquiring familiarity with several musical instruments. On the whole, he had an artistic taste in many directions.

As to his emotional nature, he seemed neither of an excitable nor of an impulsive character, and was not demonstrative in his affections. He was possessed of a strong will and capable of perfect self-control. He was not hasty to take offence, but was not one who readily forgot an offence once given. He was not vindictive or implacable. He was benevolent and sympathetic in nature and ready to alleviate pain and suffering. These qualities seemed less prompted by sentimentalism or tender-heartedness than by principle. He was a man influenced more by reason than by emotion. There was, however, no sternness about him, and he could readily enter into the sentiments and feelings of others. He had a keen appreciation of the humorous and took delight in comic periodicals and was an occasional contributor to the humorous journals.

He could easily win the confidence of young folks and possessed unusual facility in the cultivation and maintenance of friendship. He could always make friends easily and knew well how to get along with individuals. In fact, he was one who could attract people.

His religious feelings developed rather early. As a Baptist, he could not enter the church and be baptized until he had made a profession of faith before the elders. This consists in a declaration of the recognition of his religious guilt and a desire for religious conversion.

In this relation Mr. Hanna, we may say, was rather precocious. The average age of conversion among the Baptists is about fifteen, while in his case the sense of guilt was awakened at about his tenth year. This sense of guilt, how-

ever, was not very intense, as would have been the case in an emotional, nervous child, but was rather of an intellectual sort. He was more familiar with the Bible than is the ordinary child. This may, on the one hand, be ascribed to the fact that his father was a minister, and on the other, to the intelligence of the boy himself.

He displayed no remarkable degree of feeling during his religious experience of conversion, but seemed to feel comfort and peace. On the whole, the boy was very sincere, without displaying any marked religious excitement. Altogether, we would say he was like "a sensible little boy," as his father characterized this period of the child's experience.

At the end of the second year of young Hanna's university life, we find his religious interests again strongly awakened. He felt the conviction of a call to the ministry. Although his determination was met by discouragement on the part of his family, he remained firm in his resolution and left the architectural school to take up theological studies. This resolution, however, was not of sudden origin. The religious sense seemed to have been awakened gradually, but gained strength during the young man's intellectual, moral and religious growth.

The change from an architectural to a theological field of work seemed to have come about not without an intense struggle for the young man. There was on the one hand a strong desire to finish the course in the university, a desire not to be fickle and not to change his purpose. There was also a strong desire to become an architect, because he delighted in architectural studies and believed himself fitted for the work. On the other hand, the religious conviction had reached such a degree as to overcome all these desires and determine his course to renounce secular studies and devote himself to the work of the Gospel.

Religious feelings seemed to have been implanted within the young man in his early childhood. As the son of a

clergyman, it was natural he should be interested in clerical work at an early age. Mr. Hanna, when quite young, took an active interest in Sunday-school work and was a regular attendant at church and prayer meeting. He had much scriptural training and was unusually familiar with the Bible. At a very early age he was an ardent reader in theology, and upon this, as upon other subjects, he had read much more than the average young man, and had even acquired some knowledge of the Greek Testament.

In order to take up scriptural work and pursue theological studies, the university not furnishing favorable environment for religious life, the young man left the institution to prepare for his newly chosen labor.

To fit himself for the practical side of his adopted clerical profession he went to the town of Hazelton, Pa., to do missionary work. He visited families, gathered them in prayer meetings, and preached to the people. Then he entered the Baptist College at Lewisville, Pa., and became a member of the junior class, where he carried on zealously theological studies. While there he was one of the best students, and graduated with high merit, gaining the degree of "Summa cum laude." He worked arduously while at the institution, taking all the elective courses open to him.

Mr. Thomas Hanna took up clerical work not from pecuniary considerations, but rather from a profound sense of religious conviction for a work to which he felt himself called. After graduation he came to Plantsville and began to preach. He was immediately ordained. This was at the age of twenty-three.

His active mind and an insatiable thirst for knowledge led him again to pursue theoretical studies; he entered the theological school at Yale, New Haven, being only a short distance from his home. At this institution he studied the Bible and took up Hebrew. While he was carrying on studies at the university he devoted a large portion of his

time to his ministerial duties at Plantsville. He was very sociable and took an active interest in the social life of his congregation. Although a good scholar and possessed of great love for scientific work, he was not disposed to constant book application. He was very popular with the members of his congregation; would go among the people visiting them, would become acquainted with the children, for whom he had a strong liking.

He was very active, far more than the average clergyman. He preached two sermons on the Sabbath, conducted regularly prayer meetings on the week-days, and at times also in the evening. So active was he in his religious work that he would have prayer meetings whenever he could obtain help. He used his every effort to awaken interest in a better religious and moral life. He greatly influenced young people. He was active in organizing young folks and in every way endeavored to inculcate religious ideas. At the same time, he never neglected to combine and harmonize the useful and the beautiful. At the religious services, music and song contributed to the interest and entertainment of the gatherings which the young minister carefully arranged. His preaching was invariably of extemporaneous character, never from manuscript.

He was regular in his visits to the bedside of the sick, and contributed in every way within his means to charitable work. He was ardently devoted to the duties of his calling. To this he was prompted by the sympathetic side of his nature, by the earnestness of his views of life and by his deep and religious convictions.

His ministerial duties and theological studies did not rob him of æsthetic feelings; his appreciation of the beautiful in nature was as keen as ever and he greatly enjoyed the beautiful wherever he met it. He greatly appreciated natural scenery and liked flowers and animals.

Of an earnest and ardent nature, he was not too enthusiastic and in no sense one of the class known among the

world's "cranks." He took such interest in politics as is usual for the average professional man. He had, of course, political and reformatory ideas, as is but natural for an active, intelligent young man, but was not one of the class of young people who think they have the one ideal of social and political life necessary for the world's salvation. He had no nostrums or panaceas for all human woes.

We may therefore say that Mr. Hanna in all respects was a man of well-balanced and normal mental constitution, without the least trace of disposition to any of the neuroses. He was not (before the accident) subject to distressing dreams. His sleep was quiet, never disturbed by talking or wanderings.

After a careful examination, therefore, we found Mr. Hanna to be a young man of perfect mental and physical constitution before the disorder occurred, which almost instantaneously effected a profound change of his conscious being.

CHAPTER VII

REVELATIONS FROM DREAM LIFE

We here reproduce almost verbatim some extracts from our notes made during our visit to Mr. Hanna at his home in Plantsville, Conn., May 26, 1897. He was at this time confined to his bed, suffering from injury to the spine in consequence of a fall from his horse. This occurred some weeks after the original accident of April 15. It produced, however, no psychic effect, leaving him in the same state of secondary personality.

"Mr. Hanna is still in amnesic condition; he has absolutely no recollection of any life experience before the accident. He has memory only for such experiences of life as have occurred since the injury. He is as one newly born, just entering into life. His knowledge, bound up in his personal identity, dates only from the time of the accident. He will say 'I know' of certain events occurring since April 15. Of experiences previous to that time, he knows only as information acquired from others. He regards these events related to him as if having occurred in the life of quite another person. No memory of his previous life spontaneously occurs to him. The time of the accident may therefore be considered as the boundary-line between two distinct and separate lives of the same individual; what occurred in his former life, before the accident, is unknown to the personality formed after the accident. So that we may say *two personalities dwell within the same individual.* The one seems dead, crushed in the accident, and the other the living one, whose knowledge is but a few weeks old." This was the general mental condition in which we found Mr. Hanna when we visited him on May 26.

The interest lies in the question whether any experiences of his former life still exist within the mind of Mr. Hanna of which he is not cognizant. In short, the interest now lies in the possibility of tapping the subconscious life which may perhaps contain memories of former experiences. In case such memories exist, their presence will prove that the injury is really not organic, but rather of a functional character. It will at the same time indicate the presence of two memories, neither of which is cognizant of the other's existence.

The problem now is, what shall be the method of investigation? How shall we tap the subconscious, so that it shall reveal the treasury of lost memories? There are many methods of carrying out this work, but the simplest and most feasible is the inquiry into the character of his dreams.

Mr. Hanna was asked if he had any dreams, and the answer was that he had. "They are of two kinds," he said. "One is unlike the other; in the one kind the pictures are weak, and I cannot easily bring them up before my mind clearly; the other kind I can easily see and feel clearly again, as though they were before me. The picture dreams," he continued, "come in the morning; they are not like the other dreams; they are too strong and plain." We reproduce Mr. Hanna's words in order to make clear the difference between the two forms of dreams. The significance of the "picture dreams" is of vital importance.

It turned out that the dreams characterized by Mr. Hanna as "clear picture dreams," and which we may term vivid ones, were really *experiences that had occurred in his former life. He, however, did not recognize them as such* and considered them simply as strange dreams of his present life.

In these vivid or "clear picture dreams," incidents, names of persons, of objects, of places, were arising from the depths of Mr. Hanna's subconscious life. They were not

recognized by him; they seemed to him so strange, so totally unfamiliar. He mentioned names of persons, of objects, of places which to him in his waking state were perfectly meaningless, empty sounds. They were, however, understood by the parents, who were familiar with the son's former life experiences. When Mr. Hanna began to relate his dreams and the experiences he was passing through in those peculiar, strong, vivid picture dreams, the parents, who had almost despaired of their son ever again regaining recollection of his past life, were most amazed and overjoyed at this first evidence of a resurrection of what they had feared were forever buried memories.

To pass now to the dreams. The first dream described was the following: He saw a railroad with a shed on one side; he saw letters as if cut out with a knife (he probably referred to letters standing out in relief); then there was a yard with a fence around it, and in the yard were strange people, tall and with light hair; they were picking flowers.

Then he says he finds himself on a white and soft road, "never [Mr. Hanna uses 'never' as meaning 'since the accident,' as he has no memory for what occurred before] saw anything like it." A man stood at his side, whom he called, although not knowing why, by the name of Bustler. The father afterward told us that Bustler was the name of a minister, a friend of Mr. Hanna's. He could describe the man fully. He was tall, but not fat; he had a coat rounded in front and of a black color. They came up together to the railroad. Mr. Hanna carried with him a satchel, with a brown strap, held up in front of him. (The description was found to be correct.) The man whom he called Bustler then turned to him and said: "I thank you for helping me yesterday." (Father thought that this remark was occasioned by the fact that his son probably assisted Rev. Mr. Bustler in conducting services the day before.) In his dreams he heard that the place was called "Cemetery"; he does not

know whether cemetery is a name nor does he know what the word means. Then the man Bustler went away, leaving Mr. Hanna alone. Near the railroad he saw a square house, and upon it were the letters N-E-W-B-O-S-T-O-N-J-U-N-C. (Mr. Hanna did not pronounce the words, but spelled out the letters); he knows, he says, what "New" means, but does not understand the meaning of the rest. The railroad divides here into two parts, thus: V; he himself walked up on the left side of the road; he had a watch, he "never saw anything like it"; "it is of such a color," and he pointed out a book, the covers of which were of a silver color. The watch he saw in the dream had the XII marked near the winder instead of being in the same position as on the face of the watch that was lying by his side upon the table. The dream watch had a cover; he "had never seen such a watch before."

As he walked along, he saw on the left side of the road a great black building with big black lumps like coal, although he had never, he said, seen such large pieces. (He had only seen stove coal since the accident.) He also saw a horse with long ears and "with a tail like a cow." "Never saw anything like it." The horse produced such queer sounds. (The animal he saw in the dream was evidently an ass; he had not seen one since the accident.) He called that black building "brakes." (The reader's attention must be called to the fact that Mr. Hanna lived in Pennsylvania in the extensive coal districts, and the scenes he passed through in his "vivid" dreams are those commonly seen in that section of the country.) Then there was another picture. There was no black building; there were ashes instead. Then he saw a brick house; he "never saw anything like it." When asked how he knew it was a brick house, he replied that it was made up of the same material as a brick chimney, and he pointed to one seen through the window of his room. At this point Mr. Hanna said he became hungary; went into the building and bought gingerbread

for five cents; also saw near by "horses with long ears and tails like cows."

Mr. Hanna described another picture, in which he had another companion, whom he called, for no known reason, Ray W. Schuyler. In his dream he heard that the name of the place was "Morea." (We learned that Schuyler was the name of an old companion of Mr. Hanna's school-days; that they had been together in Morea, a town in Pennsylvania.) Mr. Hanna found himself walking in fields of deep snow. "Never saw such deep snow." He heard in the dream that the "white stuff" was called snow. He saw a pond; the pond was very deep, "up to the knees"; it was "awful work" to walk; he felt very warm from walking; then there was also another pond, and near it a house made of stone. He was now "walking up and down hill, and so without end." (We learned later that these journeys and the scenes witnessed were actual experiences in Mr. Hanna's former life.)

The father, who was present when the dreams were related by the son, could identify the places spoken of as well as their names and also the persons mentioned. The description of the individuals in the dreams was found to be correct. When the father happened to mention the name "Martinoe," Mr. Hanna at once said, "Oh, yes, that was the name of the place I passed through, but," exclaimed he, "how do you know of it?" When the father interposed and described more fully what Mr. Hanna saw, the latter with great wonder and amazement exclaimed, "How can you know all this, it was only a dream!" There was indeed mutual surprise, as father and son gazed in wonder at each other. The father was surprised at the unexpected appearances of old but unrecognized experiences of the son; the latter was quite as much taken aback by what to him appeared to be his father's supernatural intelligence.

When Mr. Hanna was asked about the meaning of the inscription N-E-W-B-O-S-T-O-N-J-U-N-C., he could under-

stand the meaning of the word "new"; he had learned it since the accident, but the other syllables were unintelligible to him; he could not even form them into words. He was then asked to *guess* as to the probable meaning of the letters B-O-S-T-O-N. He replied, "It might be the name of the building." When asked to try again, he said, "It might be the name of a place," but he could not comprehend why the term "New" should be prefixed to it. On second thought, however, he remembered that he had recently learned of the existence of such names as New London and New Haven, and he therefore concluded that New Boston might be the name of a place.

Mr. Hanna's present retentiveness of memory was then tested. Ten numerals were given to him. The numerals were read at intervals of a second. Of these he remembered the first six and all of them in the order read. Ten "nonsense syllables" were read to him at intervals of a second, of which he remembered the first five correctly and in the order read to him. Greek sentences were read to him; the first one had fourteen words, of which he remembered five correctly and in the order read. Although Mr. Hanna had been a good Greek scholar, he had no recollection of the character or meaning of the words. Long Latin phrases were read to him and he repeated them almost exactly, though with no recognition of them.

The Hebrew Bible was then taken, and as Mr. Hanna had once been well versed in Hebrew Scripture, the first sentence in Genesis was read to him. It was expected that possibly old memories would be brought up. The method of "hypnoidization"[1] was used. This method is most effective in the diagnosis of cases of amnesia in general, and was found to be of great value in this case. Mr. Hanna was asked to close his eyes and put his hands to his forehead and listen with all possible effort and attention to the reading of the Hebrew phrase. The phrase was read

[1] See Sidis, The Psychology of Suggestions, chap. xxii.

to him and the experimenter stopped abruptly in the middle of the sentence. He suddenly exclaimed, "I remember!" and began at the beginning and ran through the entire paragraph, which had not been read to him. With the exception of a few stray words, he at once forgot everything he had just correctly recited. The flood of memories that had arisen to consciousness suddenly subsided again and fell into the depths of his subconscious life. It had come with such a force that he said, "It frightened me; it seemed as if another being was speaking through me."

When he was asked if he knew the meaning of the Hebrew phrase or if he had ever heard it before, he said he did not. In short, not only was the feeling of recognition of the phrase absent, but also that of familiarity; the words seemed to him bizarre, quite strange.

CHAPTER VIII

UPHEAVALS OF THE SUBCONSCIOUS

By the method of hypnoidization, many memories were brought to the surface from the depths of the subconscious. Each time some forgotten experience of the life previous to the accident flashed upon his mind. These experiences were never recognized as in any way familiar; they were to him utterly strange. In these hypnoidal states, names, objects, parts of scenes rose up vividly in Mr. Hanna's mind. It was most interesting to observe him at this time. The experiences that came up before his consciousness stood out completely isolated in his mind, with no conscious relations whatever to any other experiences. It was impossible by getting hold of these experiences that suddenly emerged from his subconscious regions, to obtain by contiguous association more information. He could not recognize the meaning of these emerged mental states, as they had no relation to any others within his upper consciousness.

The absence of association in hypnoidal states was at times made strikingly manifest when merely isolated names came up to the upper stratum of his consciousness, names which he had not heard since the accident, and which conveyed no meaning to him. It was not only the meaning and import of these ideas that were absent, but all familiarity was likewise lacking.

We know from a previous examination that he was unable to recognize any experience of his former life. He had no recognition for persons and objects known before the accident. When he came in contact with persons or

objects well known to him in his previous state, in spite of all our efforts to impress the experiences strongly on his mind and reproduce their associations in order to bring recognition to the light of conscious memory, in spite of his own intense mental strain to recall the lost memories, not even the vaguest sense of familiarity was awakened in his mind. Events that had played a most important part in his life were recounted to him; persons near and dear to him endeavored to remind him of their close relationship, but all without avail. Father, mother, brother, sister, and the young woman to whom he had been sincerely devoted, all were utter strangers to him, and even daily contact and frequent association awakened no sense of familiarity. No impression coming from the external world could bring up any recognition or sense of familiarity.

In turning now to the hypnoidal states, we find that when any scene or word or name came up before his mind, it was quite as completely wanting in the two elements, recognition and familiarity. A name, for example, came up before his mind, and when asked of what he was thinking, he would simply give the name, but when we pushed our inquiry further and asked as to the meaning of the word, he replied he did not know. When told it was the name of a person or object, he was surprised that what appeared to him as a combination of "nonsense syllables," spontaneously arising in his mind, should really have a definite meaning. When he was asked, if he had any vague feeling of ever having heard the word, he invariably replied in the negative. Still more remarkable was the fact that at times, in the hypnoidal states, an entire scene arose before his mind; he could describe the scene immediately, exactly as he saw it in his mind's eye, but that was all he knew of it. He could not connect it with any experiences of a former life.

As an example of the hypnoidal states, we may mention

the psychic condition of Mr. Hanna during the recital of the previously described Hebrew passage. During the repetition of the Hebrew phrase, a flood of Hebrew passages came into the patient's mind; he expressed them aloud, but when asked what the meaning was, he did not know. They were totally unfamiliar to him, a strange gibberish. When asked why he recited more than was read to him, he could give no reason, and said he himself was frightened at the sudden outburst of a flood of meaningless words.

Furthermore, while the memory for the part read to him was good, that for the passage brought up in the hypnoidal states was vague and fragmentary. He could remember only a few individual words. It was also of importance to note that his inflection and pronunciation of the passage greatly differed from that of the reader.

It was most interesting to observe the decided change in tone and manner of the recital of the Hebrew passage which in the hypnoidal state arose from the subconscious to the surface of his mind. His voice became strong and sonorous, and he spoke impressively as though from the pulpit. It seemed as if the words burst forth spontaneously in a moment of inspiration. The memory subsided as quickly as it rose. It did not, however, completely disappear. He could recall a few isolated words, and he remembered that his inflection and tone had changed, but by no means was it possible to awaken any sense of recognition or familiarity.

As an instance of another hypnoidal state, we may mention the following: Miss C., a charming young woman, to whom he was greatly devoted in his former life, but whom he did not know in the state of secondary personality, was directed to take his hand and sing a hymn that the young man had heard before, but not since the injury. He was told to remain absolutely quiet and listen attentively. During the song, which was most impressively rendered, he remained passive and his whole attention was con-

centrated on the song. At the end of the melody he was immediately asked if he had ever heard the song before. He said he had not, and that he had not the slightest recognition or feeling of familiarity. When asked what had come into his mind during the singing, he gave two names, A. and N. He did not know the meaning of the words; he did not even suspect they were names. We learned that the names were those of two ladies whom he had met three years before. They had been choir-singers. Here again the names awakened neither familiarity, nor association, even after he was told of scenes and places relating to them.

CHAPTER IX

PICTURE DREAMS AND SUBCONSCIOUS STATES

In the waking state Mr. Hanna could not give further data as to his dreams, and interrogation brought out no more than we have mentioned. Hence, an attempt was made to put him into the hypnoidal state, and with the material afforded by his dreams to get further information, to bring up entire scenes before his mind, and to find out the nature of the psychic state during the emergence of these visual images. (We must here remind the reader that the dreams were intensely vivid to Mr. Hanna.) He was put into the hypnoidal state by the usual method, directing him to remain quiet and passive, to listen intently, with closed eyes, to what was told to him, and to tell us what was passing in his mind, to represent to himself his former "picture dreams."

We here give full notes of the experiments, as they are both interesting and instructive.

Q. What do you see now? A. I see a house with two or three steps.

Q. What more? A. Mr. Bustler and I are sitting on one seat.

Q. Do you know, or have you met the man you call Bustler? A. No. I saw him only in the dream.

Q. What more? A. There is a woman. The woman prepared his dinner. She is sitting on the other side.

Q. Describe the table, books, pictures, if you see any; try to see them fully; give close attention to what you see. Go on and describe. A. I can't see anything more.

Q. Do you see the woman? A. Yes.

Q. How does the woman look? A. Can't see her well.

Q. Try as hard as possible to see her. Is she old or young? A. I think rather young.

Q. How old do you think she is? (No answer.)

Q. Is she about forty-five? A. I don't think so; perhaps.

Q. Is she thirty? Just say how old you think she is. A. *I don't know how old people are.* (He was as yet unable to estimate the age of an individual from personal appearance.)

Q. How is she dressed? How does she look? (He did not answer the first question.) A. She is very stout.

Q. What is the color of her hair? A. I don't see her hair.

Q. Do you know her? A. No.

Q. Do you see the door of the house? A. Yes.

Q. How does the door open? A. Inside.

Q. Is it open or closed? A. It is open.

Q. Look into the room and tell us what you see there? A. Nothing.

Q. Nothing at all? A. Yes, I see a little hall; that's all.

Q. Try hard and you will be able to see more. Peep into the hall and tell us what is in there? A. No, I don't see anything.

Q. Look into the street, then, and tell us what you see there? A. I see people. People walking by, two or three times.

Q. Do you know them? A. No.

Q. Describe the houses that are in the street. A. They are very close, are built close together, like down by the watering-trough at Plantsville.

Q. Do you see any other houses? A. No, I cannot see. I see only the buildings. They are all the same. (He probably saw a row of houses.)

Q. Have they numbers or any signs? A. I cannot see.

Q. Try to see; you can if you will try. You will be able

to see well. Look down or up the street. Do you see anything more that especially interests you? A. There is a Catholic Church down the street (the word "Catholic" came spontaneously in his mind, as is usual in the hypnoidal states).

Q. How does the church look? A. Beautiful.

Q. Describe it to me. A. It is not all built.

Q. Describe as much as you can. A. It is made of brick.

Q. What more? A. Roof is only half made.

Q. What more? A. Steeple.

Q. Give more particulars. A. I cannot find names. (He was at this time deficient in familiarity with many common names.)

Q. Describe it as well as you can. A. I cannot tell. Big braces on the steeple.

Q. Anything written on the church? A. Nothing.

Q. How do the windows look? A. Glass is colored; one window is not made.

Q. What more can you tell about the church? You can describe it. Just do it. A. The church stands right by the hill. A high wall stands up, very high, right over the road.

Q. What more? A. That makes me very tired. (Here the hypnoidal state was interrupted. He was asked to open his eyes.)

Q. Do you remember anything that you told me? A. Yes.

Q. What did you tell me? A. I told you all about the house and the people and the church.

Here the father put the following question to his son:

"What church was it? The Polish or the Irish church?" A. I couldn't tell.

(Mr. Hanna did not know the meaning of Polish or Irish, just as he did not know that of Catholic.)

Here the father gave a description of the city seen by the son in hypnoidal state. It was Mackinong City. He said: "Mackinong City lies in a valley between parallel

ranges, and the southern one is evidently the one he means.''

Q. (To father.) How long is it since he lived there? A. Three years.

Q. (To Mr. H.) Did you ever see that church? A. No.

Q. When did the church first come into your mind? A. In the dream; but I couldn't see it all.

Q. Do you have an impression when you see all this, as if it is something more than a dream? A. *It is more like a dream or a story,* but papa says it is true.

Q. Have you any feeling that this is not entirely a dream, but something that is true? A. *I know what you mean, but I cannot see that way. I could remember all if I could see that way. I must just be satisfied with the picture.*

Here we endeavored to make clear to him the difference between an impression just gained and one received in the past. We mentioned to him some proper names of cities which he had not heard since the accident, and a few minutes later repeated the same names. We then asked him if there was not a difference in his impressions as made by just hearing the names and those occasioned by hearing the names for the first time a few minutes ago.

Q. Now, in the dreams, were your impressions in this sense like the first or second hearing of the names read? A. It is not strange now, but it was all strange before, like the first.

Q. How was it in the dream itself; were the impressions strange as in the first reading? A. Oh, yes, it was very strange. I could not believe it was true until father told me; but now it is not strange.

The hypnoidal states, in which material from his forgotten life came up suddenly into Mr. Hanna's mind, strongly indicated the presence of former memories in the subconscious regions. Tests of his intelligence pointed to the same conclusion, namely, that the lapsed memories were still present in a more or less sound condition. For it would

be unreasonable to assume that one who had lost completely all possession of the rich material of his whole life experience could possibly acquire so much in so short a time, could be so intelligent, reason so well, and arrange his ideas in a proper and logical order. Intelligence depends upon memory. One who is an infant in all relations as to the stock of experiences, both conscious and subconscious, cannot possibly be a good reasoner. A newly born babe is not a good logician. Evidently memories of his former life existed, though buried deeply in the underground regions of the subconscious, and it was from these regions that in the hypnoidal states bits of experience flashed, lightning-like, into the upper waking consciousness.

Mr. Hanna was given various arithmetical problems to solve. He had as yet learned but very little of arithmetic, and had acquired no knowledge of fractions. In order to test his intelligence and powers of reasoning, he was given the following problem to solve mentally: If three men, A, B and C, do a piece of work respectively in three, four and five days, how long would it take them to complete it, all working together? He arrived at the approximately correct result almost immediately, and showed great keenness of mind. The common denominator to which he reduced the amount of work done by each man in one day, he represented to himself as so many pieces of paper of equal size, made groups of them, taking for his numerators 12, 15 and 20 respectively. Adding these together, he found how much work, represented in terms of the bits of paper, the men could do in one day, namely, forty-seven. From this he concluded that the entire work, represented by sixty pieces, would require one whole day and about one-fourth more.

It is interesting to observe that he, at this time, had as yet learned nothing of fractions, was even unable to form the numeral five, not having seen that particular figure since the injury. When asked why, in his calculation, he had taken just sixty objects, he replied that he could not

tell why, but that it appeared evident to him. It was clear from this and other experiments that it was the experiences buried within the subconscious that enabled him to solve the problem.

Geometrical problems were likewise given to him. He had learned in an elementary way something of angles, perpendiculars and so on. The first problem was the well-known theorem, that vertical angles are equal to each other. As he did not know what "vertical" meant, the term was explained and diagrams drawn and shown to him. After some moments of thought he demonstrated the theorem. It was interesting to note that his process of reasoning was quite analogous to that ordinarily given in geometry. When he was asked whether he had any sense of familiarity with such work, he replied it was entirely new to him.

The familiar theorem of Pythagoras was given in a concrete form expressed in numbers. "Suppose," he was asked, "you have a right-angled triangle [the meaning of the term was explained to him], of which one side is three and the other four inches, what will be the length of the third side?" After some thought, he said he believed that the third side would measure five inches. The reason he could not give; it seemed to him that the length ought to be five. When pressed for a reason, he measured the line and showed it was so. Other less complex problems given him, he solved in his own crude way, although the results were uniformly correct. Here again we see clearly the subconscious work of memories lost to the upper consciousness.

As a further evidence of the remarkable intelligence of Mr. Hanna due to the work of memories, lost to the upper self-conscious personality, but present to the lower subconscious, we may mention the following interesting experiments: Mr. Hanna was taken to the family church at Plantsville, a place intimately associated with his religious life and activity, where the foundation of his religious

convictions was laid, where he had been baptized, where his father had preached for many years, and later where he himself had so often conducted services and given religious instruction.

He was told to stand upon the pulpit, the Bible was opened before him, and he was told to read the first passage in Genesis. Then he was asked to preach a short sermon, the subject of which was very remote from the actual meaning of the passage. We wanted to test the keenness of his intellect, his analytical powers in discriminating ideas and bringing out points.

He was asked to point out how the text, "In the beginning God created heaven and earth," shows that man should be good. He had not read the passage since the accident and was unfamiliar with it. When he mounted the pulpit his *naïveté* and childishness were shown by the remark, "Papa stands very proud here." His entire deportment in the church indicated that he did not realize the solemnity of the place. He had not yet learned of this. His deportment before the accident was one in every way in keeping with the dignity of his holy office. His manner of entering the church was one indicating curiosity, although that was not his first visit since the accident. He remarked that he could hardly believe he had ever stood in the pulpit as a preacher "like papa."

Mr. Hanna gazed helplessly into the ponderous volume of the Holy Scripture, but could not believe he had ever been familiar with it. He slowly began to read the text, "In the beginning God," and stopped; he could not read the word "created." The word was pronounced to him and its meaning made clear. He finished the verse and then repeated it from memory, "In the beginning God created heaven and earth." He was now asked to close his eyes and deliver his extemporaneous sermon. He began as follows:

"Created means make, as you said. If God made heaven

and earth, He must be very much more great than you and I could be. This, I think, is a good reason for being good. If God made these things in the beginning, then He must have been long before we have been, and if He has been so long, as He has been able to make heaven and earth, it is wise for us to be like Him, and He is good. I think that is a good reason for being good. Is that what you mean?''

In these experiments, we reproduce verbatim the words of Mr. Hanna. The reader must bear in mind Mr. Hanna's extremely limited vocabulary at this time.

''If God made heaven and earth both, if they are both made by the same one, they ought to be both alike, and we know that heaven is good [he probably heard this from his father], and so people on earth ought to be like heaven. That is another reason why they must be good. Because one person made them both, and they ought to be alike.'' (Here he paused for some time, then continued.) ''If God made the earth, He must have had a reason for making the earth; He must have wanted the earth for something, and if God is only good, He must have wanted the earth for some good thing, and then if we are not good and do not make the earth good, we have opposed what God wanted to make the earth for. So I think that is another reason not to oppose *why* God made the earth.'' (He evidently wanted to say we should not oppose the will of God, but neither the concept nor the word indicating it was present in his upper consciousness.) Long pause. ''I think those are all the reasons I can find.''

About a week later he was asked to repeat his sermon. He gave the substance of it, though not the exact words. He logically classified it under four heads, as follows: 1, Justice; 2, Wisdom; 3, Carrying out the design; 4, Harmony between heaven and earth. (Mr. Hanna expressed his ideas in long sentences and explanations, but we give them in an abbreviated form.) ''Just try to form a prayer,'' he was told. He replied, ''My papa at home

kneels down; shall I kneel down?'' He was told to do so. He knelt with bowed head. ''I cannot get any words,'' he said. ''Take time, the words will come to you.'' Here followed a pause and he began slowly, as follows: ''I wish that my memory would be all right, but I cannot make myself right; and my memory—I must wait until God can in some way get it back. I do not know how it will come, but I have tried every way I can think, and the doctors have tried everything they know, and all the people have been doing everything kind that they can, and even now I must wait. It cannot come now. But I am ready to do anything for it to come back, or else I am content to wait until it is right for it to come back. Sometimes it is very hard to wait. Sometimes I am content with what I have got. I wish more for other people than for myself that it would come back, because they feel much more than I feel, to lose so much; but they have no more power than I have, so we must all wait, and try to do the best we have known.'' (Long applause.)

Mr. Hanna then arose and said: ''Father never kneels down to pray when in the pulpit. He only kneels down at home.'' This commonplace and to him in his former state perhaps profane remark, after offering a prayer, exquisitely illustrates his innocence and simplicity of mind. He did not realize in this psychic state the solemnity of the prayer and the sanctity of the occasion.

Q. Did you find anything coming into your mind while you were praying? A. No, I cannot do anything with my memory.

Q. But did you get memories coming to you? A. Never when I try; it makes me very tired to try.

Q. Have you no recollection, have you no feeling of familiarity, that you have been in this place preaching and praying? A. I do not know how I used to do. Father stands away fom the book like this (imitating his father); I do not know.

Q. Have you not any feeling of familiarity; a feeling of which you cannot give yourself an account, that once you were in this very place, in this very pulpit, and that you were preaching to people, and that you prayed in this very place; that you were baptized here; simply a feeling just as if you see something, but not clearly? A. No, except that my father was here. (Since the accident.) That makes it somewhat familiar to me. What did you mean by "baptize"?

Q. Don't you know what "baptize" means? A. No.

Q. What do you think the word may mean? A. I do not know; but they have shown me people that I have baptized, but I did not ask what it meant. (Mr. Hanna found it embarrassing in the company of strangers to repeatedly ask the meaning of words which he felt were so familiar to others.) It has something to do with their coming to church.

All these experiments together with the hypnoidal states clearly indicate that Mr. Hanna's subconscious was in a sound condition.

CHAPTER X

RESURRECTION OF OUTLIVED PERSONALITIES

We wished now to get into direct touch with Mr. Hanna's subconscious life. We therefore arranged to watch him constantly at night and study his dream states, and watch especially for the recurrence of what he characterized as "picture dreams."

On May 28, about five in the morning, after a fairly good night's rest, Mr. Hanna became restless. He was very gently touched and asked what the matter was. We did not wish to awaken him, but to insinuate ourselves into his mental states and to sound his consciousness. When softly spoken to, he replied without opening his eyes. Even when pinched and pricked he was not aroused. In his natural sleep he is very sensitive; the slightest stimuli awaken him. It was not so, however, in this psychic state, a state that may be characterized as *hypnoidic,* which consists in a hallucinatory recurrence of former life experiences, a resurrection of outlived personalities.

Mr. Hanna was at this time apparently having sensations of chill and was shivering greatly. His face expressed great agitation and pain. When asked what the trouble was, he exclaimed, "Oh, it is terrible!" To our questions, "Where are you now?" he replied, "Mt. Jewett." "St. George's."

Q. What are you doing there? A. She is falling. Thunder, wind, rain. (Shivers intensely.) Let us go on, we will save her.

Q. Who is the woman? What is her name? A. No name. She cries, "Für God's name, help me." (He said

für instead of for, repeating the broken English used by the woman.) She has two sick children. Mt. Jewett is five miles away. Must carry the woman and the child.

Q. Is there only one child? A. Only one child. Oh, oh, I am so cold. (He shivers; shows great suffering from cold.) "Oh, the mountain, Mt. Jewett, we run."

Q. What are you doing now? A. I drag the woman. The doctor gave her the bottle. Poor woman, so weak.

Q. How old is the child? A. It is a little boy and his name is Carl.

(Mr. Hanna rubs his eyes. Exclaims, "Poor old woman! My heart is weak.")

He seems to make strenuous efforts; says he is trying to climb over trees and stumps.

At this point Dr. S., who was endeavoring to insinuate himself into Mr. Hanna's thoughts, and to whom the patient was replying, suggested that he (Dr. S.) was Mr. Bustler. This was done in order to test the extent of knowledge and experience present in this state; to see if he knew in this state what he did not know in his waking condition. Mr. Hanna, however, laughed us to scorn and said, "Mr. Bustler is not here. He is twelve miles away." It was quite clear that we were now in direct touch with a personality different from the secondary one, and possessing knowledge which the latter lacked.

Q. Where are you now? A. Mt. Jewett. I fall over stumps. I climb over trees.

A little later, when asked where he was, he replied: "Poor old home, child sings. Is so glad. Little child lying in bed. Dirty child." (He had evidently arrived at some place.)

Q. What are you doing now? A. I am drinking beer.

He was now asked if he knew Miss C. Mr. Hanna laughed, regarded the question as funny, irrelevant at this time; said, *"I don't know her yet; I know her later? From her to Mt. Jewett is a year."* This we learned to be correct.

The personality was in a peculiar psychic state, in which it was able to foresee its future life. It was as if we should possess prescience of what was to take place in the distant future.

When asked to give the month of the year, he replied, "August." We insisted that it was May (the actual time), but he laughed scornfully and said, "I am sure it is August." "You cannot make me crazy." His experiences lived over again in this state had really occurred in August.

When asked to describe the house where he had now arrived, he said, "It is a road-house. Tar-paper all over the roof; women are shrieking in the street. I am tired. Give me more beer." (Apparently addressing the woman.)

Q. Who is in the room? A. A girl. She has a nice face, but unclean. Speaks English badly.

Q. What is her name? A. Girl says, "I have no name. They call me Sal."

At this point the character of the "vision" changed, and he passed into another state of consciousness with a different content of experience. This time a boy personality emerged. He exclaimed, "Now we go to the island, Umbrella Island. It is beautiful. The oar-lock is broken off. Oh, this is beautiful!" When asked where he was, he exclaimed, "They have gone to supper; Uncle Will and Hen. Take hold of fish-nets. Cannot row; oar-lock gone."

He was again asked if he knew Miss C. Replied, "Don't know her, acquainted a long time after."

When asked how old he was, said he was thirteen years. When asked if he knew Mr. Schuyler, said, "I know he is a man; *don't know him yet.*"

Asked where he was living, he replied, "In a cottage." Mr. Hanna was murmuring the names of his brothers and sisters. At this point the "vision" or hypnoidic state ceased and he awoke.

On awakening from his vision state, he remembered the

vision itself very clearly; he could represent it to himself distinctly, reproduce it in all its details; he could not, however, recognize the experiences of his vision as events that had occurred in his past life before the accident. He did not know that Dr. S. conversed with him and led him to give answers, nor did he remember any of the many statements made by him in his "vision" state. He could not remember the answers he gave upon the suggestion that his friend B. was with him. He did not know anything of the quarrel we had about the date, nor did he remember anything of the interesting facts he gave about the events of his life, such as the data of his acquaintance with Miss C. He could only remember, and with extraordinary clearness and distinctness, all the experiences that constituted the vision itself. The names in the vision, such as Mt. Jewett, St. George, etc., were to him unintelligible. When asked, if he knew what beer was, he replied he did not, but the brown liquid he saw in his dream had been called "beer." When asked who Uncle Will was, "I do not know, I have an Uncle William, but not one named Will." He had evidently not learned since the accident that Will was an abbreviation of William.

We learned from reliable sources that the scenes, events and experiences of the "vivid dream" were really life experiences which had occurred years previous to the accident.

By these various methods of sounding Mr. Hanna's memories, we were enabled to establish fully the correctness of our original view, that the lost memories were still present and buried within the subconscious self.

CHAPTER XI

AWAKENING OF PRIMARY PERSONALITY AND DOUBLE CONSCIOUSNESS

The psychological examination, the study of the hypnoidal and hypnoidic states, the marked intelligence of Mr. Hanna, clearly demonstrated to us that the forgotten memories were not lost, that the primary personality was buried deep down within the regions of his subconscious, and that he was in what may be termed a secondary state.

Our line of work, therefore, lay clearly defined before us. The subconscious primary personality must be stimulated, brought to the surface as often as possible and finally the two personalities must be merged into one.

As Mr. Hanna could not be put into the hypnotic state, it was necessary to find a course of procedure by means of which the buried personality could be brought to the surface.

For the purpose of closer observation and experimentation, Mr. Hanna was brought to New York, where facilities were afforded for carrying on the work.

Mr. Hanna was constantly under our immediate observation and was closely watched day and night. The method now to be employed was that of stimulation. The lost memories being present in a subconscious state, the object was to stimulate that subconscious state and force it to the surface of upper consciousness. This could be accomplished by suddenly bringing the young man into an entirely new and different environment which should afford to him a mass of new and intense stimuli. At home Mr.

Hanna was confined to a more or less monotonous and narrow sphere; living in a village, the scenes were daily the same; his existence lay in the same beaten track; his life was unvaried and uneventful. The faces he saw, the scenes and conditions about him, tended to perpetuate the same mental state. His mind was slumbering in the quiet puritanical environment in which he was leading a more or less vegetative existence.

The lost memories existing in the subconscious were in an inert state and could not possibly come to life under the conditions in which he lived. It was necessary, therefore, to confront him with experiences which, although new to this secondary state, were nevertheless within the range of his former life experience, but such as to strongly interest him, impress, dazzle and bewilder him. A flood of experiences which the secondary state could not assimilate had to be suddenly forced into his mind. The secondary self would not absorb it; the experiences would be too sudden, too strange and vast. The secondary state would fall into the background, and make possible the emergence of the old primary personality.

On the evening of his arrival, in the company of his brother, we took Mr. Hanna to a brilliantly lighted popular restaurant. The place was fairly alive with people, and during the dinner the general conversation was made lively and stimulating. Stories and anecdotes were told, followed by general laughter, which all but Mr. Hanna appreciated. Merry scenes and gay music added to the brilliancy. All this fairly bewildered the young clergyman. The stories, as a rule, failed to be understood by him, and he was sorely puzzled at the outbursts of laughter that followed. His secondary personality, never having had such experience, could not comprehend the meaning and significance of the various remarks and anecdotes. The fact that his own brother saw fun and humor in the stories puzzled him still more.

Mr. Hanna heard the strains of a mandolin in an adjoining room. He thought the music "pretty," but could not imagine the form and nature of the instrument which could produce such "peculiar, though pretty sounds." He had not tasted coffee since the accident; it was entirely a new beverage to him. The coffee helped to stimulate him both psychically and physiologically. His curiosity and interest were aroused and became very active. His attention was acute, fairly tingling with alertness to new incoming impressions. The phonograph, among other things, greatly interested him. He was kept for three hours under the pressure of a mass of various psychic stimuli.

The subconscious was thus stimulated into activity and finally came fully to light. It required some hours before the psychic stimuli became summated and brought to light the primary personality.

Amnesia is a dissociation of consciousness. The mental state of Mr. Hanna being of that nature, and, furthermore, of the type which may be characterized as complete amnesia, the dissociation was necessarily of a complete character. That is, the plane of cleavage between the consciousness up to the time of the accident and that since the accident was of such a nature as to sever all association between the two. The dissociation that had occurred within his mind was such that the old memories were in a subconscious state, while those recently acquired belonged to his present self-consciousness. It is therefore clear that if these subconscious memories in the form of the primary personality would be stimulated to come to the upper consciousness, the newly acquired memories, the secondary personality, would sink in their turn into subconscious life.

Now in the type of amnesia to which this case belongs two individual systems of psychic states carry on their functions in an isolated and independent manner; one is the primary and the other the secondary. The rise of one system will be accompanied by the fall of the other, and

the result will be an *alternation of personality.* Such was the course of the case.

Mr. Hanna's first night in New York was spent at the house of Dr. G. The room-companion of the patient was his brother, Mr. J. H. The brother was instructed to call us, should anything of interest occur during the night.

CHAPTER XII

THE RISE OF PRIMARY PERSONALITY

As the phenomena now manifested by Mr. Hanna are of the utmost importance, we give as detailed an account of them as possible. We quote verbatim from our own notes and from the account given by Mr. Hanna's brother, who accompanied him and took care of him.

(Account by Mr. J. H.) June 8, 1897. "We went to bed at eleven o'clock, and remained awake talking for about forty-five minutes or an hour, and then I fell asleep, and was awakened some time after by hearing my brother leave the bed. He lit the gas and began reading a book. I asked him, if he could not sleep, and he said he didn't and could not, and then I fell asleep. (This was doubtless due to the excitement to the summation of psychic stimuli of the evening.)

About 3.15 A.M. I felt him shake me. I asked him what was the matter, and he asked me where he was. I told him we were in New York. He said, "What are we doing here?" and I asked him how he felt; if he had slept well. He said he had been dreaming. I asked him what was the last he remembered. At first he wouldn't answer. He wanted to know why he was in New York. I told him that this will be made clear to him if he should have a little patience and answer my questions first. I asked him to tell me what he remembered last. He said the last he remembered was Thursday evening. He drove over to Meriden for me. I asked him about the drive, what he saw or what the drive was like, and if he could describe it. He said "Yes"; he drove over for me, and on the way there he passed a balky horse. Later on, he met a friend named Mr.

J., pushing his wheel up the mountain, and when he arrived in Meriden, he said, I had walked out a mile to meet him; that I got in the carriage and we drove to my room. I asked him where I had my room, and he said on Crown Street, opposite my old room. Then I asked him what he remembered on the way back, and he began to tell me about the accident of April 15. Then I interrupted him to ask him for something previous to the accident.

I asked him, if he remembered that I read anything to him. He said "Yes," he did. He remembered an ode that my brother wrote on my sister and my brother. He thought it was very fine; it was funny.

Then I asked him about the accident and he gave the following account: I was driving and something was wrong with the headstall, which was over the horse's ear and seemed to trouble her. He said I turned the carriage so he could get out, and he started to get out and fell. He had a pain in one leg and his other foot caught in the lap robe, so when he fell he could not put out his leg to catch himself, and that was as far as he remembered.

I then asked him if he remembered his past life at the University of Pennsylvania and at Bucknell University. Here my brother's patience was exhausted, and instead of answering, insisted on knowing why he was in New York and how he had got there. I told him that when he fell, he struck his head and lost consciousness; that I had carried him to Southington, and since that time he had no memory of his past life. He thought it was a joke, and said I must be joking. He asked me if I carried him down here to New York, and then he shook me by the shoulder and said it was a huge joke. I told him we had come to New York for the sake of seeing the doctors here and that we were in the same house with Dr. G. I asked him where he had placed the matches, and he said, "The matches? I did not put any matches anywhere." He had placed some matches on the mantel before he went to bed.

When Dr. G. came into the room, Mr. Hanna looked at him inquiringly, as if seeing one who was a perfect stranger. We endeavored to aid his memory by some associations or impressions which were frequently present in his experiences since the accident. Mr. Hanna was asked if he could not recall Dr. S. and Dr. G., whose attendance upon him since the accident had made him quite intimate with them. When told that their acquaintance dated some weeks back, he was puzzled and seemed to doubt it strongly. When further asked concerning the events of the previous evening, his memory was found to be a perfect blank. He knew nothing of the incidents nor of the individuals; nor did he show even the slightest trace of recognition or familiarity. It was not possible in any manner to awaken recollection of anything which had occurred since the accident. He could not reconcile himself to the facts told him. To him Dr. S. and Dr. G. were fictitious persons, and the whole account was to him nothing but a well-concocted story. The only one for whom he had recognition was his brother. He said he knew his brother and could only explain the peculiar situation by his conviction that his brother had played a huge joke on him and had made arrangements with us to carry out the fun. He then asked what time it was and looked out of the window and saw it was daylight. We replied that it was four o'clock. He said it must be later, as it was so light. The accident occurred on the 15th of April. When he awoke, he thought that the accident had occurred the previous evening. As the dawn occurs later in April than in June (the present time), he thought it must surely be later than four o'clock, and considered his brother mistaken as to the hour.

Mr. Hanna was assured that he had been sick for the past six weeks and had lost his memory by a fall. At first he absolutely refused to believe it, and only after the most positive and repeated assurance, finally said: "Well, I suppose I must believe you, boys." He was unable to re-

call a single incident that had occurred since the accident. He could not even recollect the last thing done before going to bed the night before.

Mr. Hanna soon began to regard with curiosity and interest the various objects about the room, which he appeared to see for the first time. He looked at pictures on the wall and made comments upon them. He admired some of them, and of one he said, "That is a fine picture." His brother then showed him one he had seen just before retiring. He had no recollection of it. Another picture, portraying a horse, and which had especially interested him the evening before, did not now interest him in the least. When his attention was now called to it, he did not recognize it. He made some comments on other articles in the room; spoke of the folding bed, said, "This is liable to close upon a fellow." He was asked, if he had ever slept in one before. He said often. In short, the room and environment were entirely new to him.

Some incidents were then related to Mr. Hanna that he had described in his picture dreams, or what we characterized as hypnoidic states. Characters which had appeared to him in those states were spoken of, and he knew them at once. He gave an account of his relations with these individuals and verified as actual all the events he had gone through in his picture dreams of the secondary state. When asked, for instance, who Schuyler was, he answered, "An old school-mate of mine." He also mentioned his relations to the Bustler of the hypnoidic states. When asked about Cemetery, Mt. Jewett, New Boston Junction, he gave us a detailed description of them; of his experiences on Mt. Jewett, during a violent storm, he gave a detailed account. He met there a woman and child in distress; rescued them; accompanied them home, and so on. In short, *he recounted as a part of his actual life experience all that we had witnessed him live over again in his hypnoidic state.*

Mr. Hanna was astonished at our intimate familiarity with these events of his life which he had kept as a secret. "I never communicated that to anybody," he said, "how do you know about it? I would not have my mother or father know that for the world, because they would worry were they to know of some of my thrilling experiences in mountain life." Assured that he himself had told it, he positively refused to believe it.

Mr. Hanna was greatly bewildered at his new experience. He would frequently turn around and say, "Now, boys, this is a huge joke; tell me where I am."

Last night, when at dinner, we happened to speak of Sweden, of its literature, and so on. This seemed to have made a very strong impression on the young man, and when we were in the car, he turned to us and said, "The woman in the dream about Mt. Jewett was Swedish. I did not know that Swedish was a nation, but I am sure that in the dream about Mt. Jewett the woman was Swedish. I did not know what Swedish meant." When asked how he knew she was Swedish, he answered, "I know it." He could not give the reason. Now, in his present primary state, when he was asked about the woman on Mt. Jewett, he confirmed the statement of the evening previous, that she was Swedish. "They were all Swedish living about there." He could not, however, recall that he had spoken of Sweden during the previous evening, and that he had said the woman was Swedish.

Mr. Hanna was then asked as to his companion at college. He mentioned names and incidents, spoke of boarding and gave, among other things, the names of eight companions who usually dined with him and also the order in which they were seated at the table. His brother verified the truth of his statements.

In the midst of our conversation, Mr. H. suddenly exclaimed, "What a funny taste in my mouth! You have been feeding me on tobacco." (He was not conscious of hav-

ing smoked a cigarette the evening before. He had given up the use of tobacco some years ago.)

At the question, "How is Miss C.?" he became indignant. "That is my business, and furthermore, see here, honestly, I take a decent joke, but I want to know what you are about. I don't want to have the name of Miss C. bantered about."

When he was asked how he felt, he said, "I feel just like Rip Van Winkle. I feel hazy."

Tests of his handwriting gave interesting results. In the secondary state he wrote poorly; he could only make printed characters; his written letters were extremely imperfect; many of the capitals he could not write at all. He was now asked to write his father's address. The handwriting was identical with that of his state previous to the accident. The address he gave was that of the former residence of the family before the accident. His family up to the time of the accident lived in Pennsylvania, and he, having no memory in his primary state for what occurred since the accident, thought that the family still lived in Pennsylvania. He did not know they had moved to Plantsville since his illness.

Mr. Hanna then turned to his brother and asked with great interest, "Who has been preaching at the church?" The brother replied that the father was occupying the pulpit and that the family had moved to Plantsville. He exclaimed in great surprise, "Why, you don't say so; when was this?"

A number of events occurring during the last six weeks were recalled to him, but his mind was for them an absolute blank.

When he was asked to rise, he said, "he felt sore and exhausted." His back was stiff. He arose with difficulty and was assisted down-stairs and back. He said he felt as if *"he was recovering from the fall of last Thursday."*

When requested to relate the dream he had just before

awakening, he said, "I dreamed I was with Em. on the street-car." Asked where that was, he said, "In a city." Asked what city, answered "Philadelphia." He remembered no further details of the dream.

The dream, therefore, related to the experiences of his primary state. He must have passed into that state, when asleep.

Mr. Hanna soon expressed himself as "feeling very sleepy," and begged permission to lie down and sleep. He seemed unable to remain awake. This primary state lasted about three-quarters of an hour.

CHAPTER XIII

THE REAPPEARANCE OF THE SECONDARY PERSONALITY

Mr. Hanna fell asleep about 4 A.M., June 9; he was visited at hourly intervals, and found sleeping very soundly. At 9 A.M., in response to a request to arise, he said, "I must get up," but turned over and fell asleep again. He was left undisturbed and arose at 9.30. He seemed familiar with his surroundings. Dr. G., thinking Mr. Hanna continued in his primary state, said to him:

"You may think I am rather familiar, but you see I have known you longer than you really think. I have known you for some weeks now, though you may not know it."

Mr. Hanna replied, "Yes, I know that."

He was then asked to relate the order in which the gentlemen he spoke of a few hours ago were seated around the dining-table; the interrogation referred, of course, to the dinner-table around which his fellow-students had sat in college days. He replied, "Let me see, there was Dr. S., Dr. D.," and so on, mentioning the order and names of the gentlemen at supper the evening before, but he had no idea of having mentioned the students. *He was again in his secondary state.* He was then asked if he had ever slept in such a folding bed before. In his primary state of the early morning he had been asked the same question and had replied in the affirmative, making such comment as to show full familiarity with it. To the same question put to him in his present secondary state, Mr. Hanna replied negatively; he said, "Never knew of one."

In his primary state, when he was informed of the loss

of memory and of events which had occurred during the secondary state, and of which he was ignorant, and when asked how he felt, he characterized himself as Rip Van Winkle. Now, in the secondary state, when asked what the words Rip Van Winkle might possibly mean, he replied he had never heard such a word and didn't know its meaning. In order to mislead him, he was asked whether it was a street or a hotel. He said it might possibly be the name of a hotel, as hotels like to have "high-sounding names." "Yes, it might be a hotel," he repeated.

It was evident that, having lapsed into his secondary state, he was continuing the life and carrying on the memories of that state. He was again in full possession of everything that had occurred since the accident, exclusive of the events of the early morning in the primary state, but had lost all memories of events up to the time of the accident and also of the interval during which he was in the primary state. After having passed again into his secondary state and having been informed by his brother how totally changed he was, how his friends and events of the one state were lost to his mind in the other, he felt greatly depressed and was almost in despair. He was fully conscious of his misfortune and complained bitterly, fearing that he might at any time and in any condition lapse from one state into the other, with absolute loss of knowledge of his surroundings and of his friends of the other state. He realized that in his present state of psychic alternation he could hardly be trusted to go about independently.

When he was assured that a speedy cure would be effected, he was rather sceptical. The account given to him of the absolute change from one psychic state to another impressed him deeply. When told that the two states were fixed and that finally in the one he would have an indirect knowledge, by information from others, of what happened in the other state, he turned to us with the rather pertinent inquiry, "And how do you know that there will not come

a third state in which I will not remember either of the two?'' Mr. Hanna seemed depressed and absorbed within himself, but this soon passed off. In his secondary state his emotions changed rapidly; were readily influenced by passing events; they were unstable, less persistent than in his other states. His sensitiveness in the secondary state was very acute and he was extremely susceptible to external stimuli. This fact becomes especially prominent by a comparison of the secondary with the primary and normal states.[1] (See plates I, II.)

[1] The delicate sensitiveness and extreme organic susceptibility in his secondary state to external stimuli manifested itself also in a form which to his family appeared as *clairvoyance.* Thus he was able to find objects hidden from him, and was uniformly correct in guessing in which hand a small coin was held, both hands being concealed from view. His knowledge seemed to be a kind of intuition, or, as he said, "instinct," which he could not explain or understand. This condition was absent both in the primary and complete states. This fact greatly awed Mr. Hanna's family, who attempted to conceal it even from us. In like manner the straps with which he was bound after the accident he invariably located, in spite of the fact that his family made every effort to conceal them, since their presence agitated him.

We must add, however, that these facts were not under our direct observation. We simply record them, to indicate the sensitiveness of the secondary personality, but cannot vouch for the exactness of the observation, as it has not been accurately investigated.

CHAPTER XIV

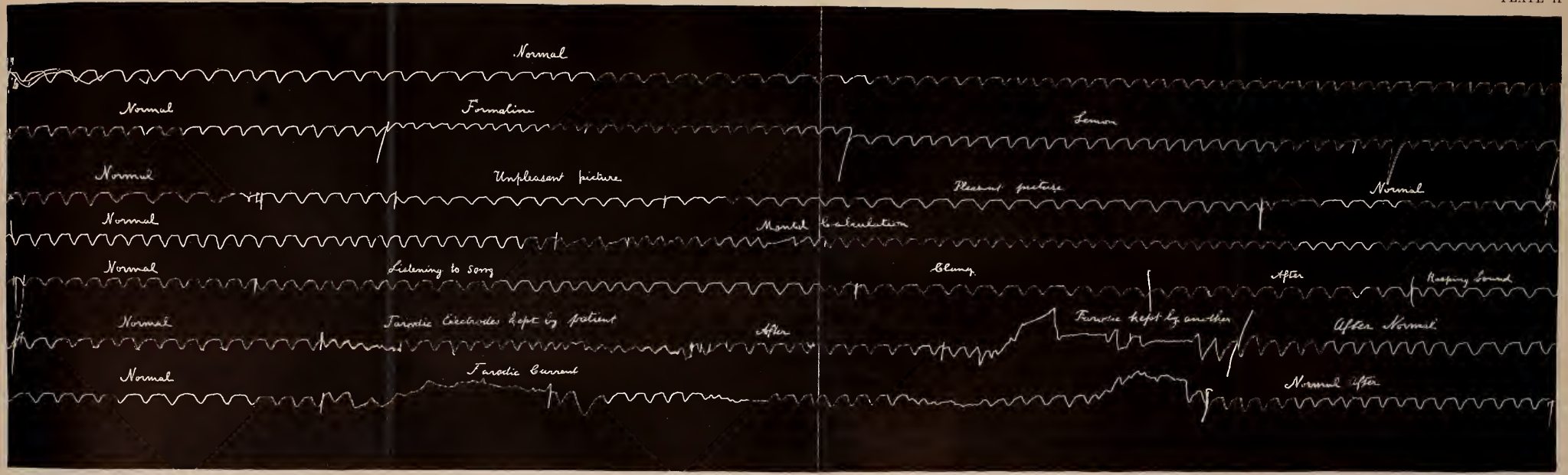
THE AROUSAL OF THE SUBCONSCIOUS

THE next few days were spent in psychological experiments. With the pneumograph, sphygmograph, reaction recorder and other instruments, we studied the mental condition and the various reactions, sensory and motor, of Mr. Hanna in his several psychic states.

During the following day Mr. Hanna remained in the secondary state. We wished to vary and intensify the stimulative agents, to reach if possible into the more susceptible recesses of his underground life and bring repeatedly to the surface memories buried within the subconscious.

We must here emphasize the fact that the experiences used as psychic stimuli, in order to bring out repeatedly the primary state, were all of them of such a nature as to be similar to those of his former life experience, present in the subconsciousness. We avoided bringing him in contact with altogether new and sudden experiences which would act as a shock to him. Some of the experiences were similar to those already lived through by Mr. Hanna before the accident.

Our efforts were in a general way directed along two more or less distinct lines. One, which we may appropriately term the *method of recognition,* consisted in the stimulation in each individual experience of a sense of recognition and of localization in some at least indefinite past. This method has rather an indirect value. Although Mr. Hanna had never direct recognition of objects, the sense of recognition was nevertheless stimulated, and finally the summation of the stimuli helped to bring out the primary state, of which it formed an essential element.



Pneumographic tracings of Mr. Hanna in his primary state. The first tracing is under normal conditions—no stimuli are applied. The tracings give regular respiratory curves. The rest of the tracings are first normal for a brief period and then under the influence of various stimuli. In this state the pneumographic curves show but little change, the reactions to stimulations are very slight, showing a great relative diminution of sensitivity of the primary personality.

The second method, which may be termed that of *psychic infusion,* consisted in rapidly confronting him with new impressions, infusing, so to say, into his mind a mass of experiences which, although strange to his secondary state, were perfectly familiar to and even exact reproductions of events lived through in his primary state. The two methods were often conjointly applied. The second method was mainly used during the first evening preceding the full manifestation of the subconscious primary state.

As an illustration of the first method, or that of *recognition,* we may describe our visit with Mr. Hanna to the Zoölogical Garden. Mr. Hanna before the accident had frequently visited the place and had been quite familiar with it. During our visit he displayed his usual intense interest and surprise. Everything seemed entirely new to him. To our question whether he had seen any of the animals, he invariably replied he had not. The only recognition he showed was indicated by the remark that he had seen a few weeks previously the picture of an elephant and rhinoceros in a picture-book. We passed a stall enclosing a donkey. Mr. Hanna at once exclaimed, "There is a horse exactly like that I saw in my dream." Some of the more common horned animals he called cows, although evidently appreciating the differences. The deer was one of these. Some of the plumed birds he thought were a kind of chicks.

We invariably observed that even the most commonplace things which he had not seen since the accident interested him greatly. He gazed at them with a curiosity as if he had never known them. He was like a child in his interest and amusement at seeing new objects, but showed his keen intelligence in inquiring and accepting critically statements about them. He was, indeed, like one coming from another planet where all things were different.

Mr. Hanna at this time fully appreciated his loss of memory, and often himself expressed astonishment that it could have been so complete. He would often turn to us

with the remark, "It is truly wonderful that I should have known (or lived through) such things before. I often try so hard to recall, but it is so impossible that I have about given it up."

As Mr. Hanna had not for several days passed into the primary state, and as we were anxious to induce alternation of the states as frequently as possible, we now, both for theoretic and practical purposes, employed the method of physiological stimulation. This method consists in the administration of some drug, which, without acting as a poison, stimulates the higher cerebral centres. The drug selected for this purpose was cannabis indica. The extract was employed and about two grains in one-fourth grain doses administered within four hours. The drug influenced strongly his circulatory system; the pulse became rapid; the rapidity increased decidedly when he moved about. There were no special sensory or motor phenomena manifested. His mind, however, remained clear, his intellect unaffected by the drug. His emotional state became gradually one of euphoria, and his actions soon indicated a sense of inner joyousness and mental buoyancy. He was mirthful; he seized pillows from the bed and threw them at his brother and otherwise showed an unusual playfulness. This condition gradually subsided and was succeeded by a state of calm, from which, after about half an hour, he passed into a natural sleep.

Mr. Hanna was watched closely during the entire night. No phenomena of interest occurred. He was not in a hypnoidic state; when spoken to lightly, he did not reply, and reacted naturally to awakening stimuli. He continued in this secondary state during the night. At eight in the morning he awoke, looked about in astonishment, with no recognition of his new surroundings. (During the secondary state, we had intentionally changed his environment in order to keep him under the influence of varying stimuli.) Mr. Hanna did not recognize Dr. S., and looked at

him in astonishment, although during the night, when he was in the secondary state, he had answered the questions of the doctor and fully recognized him. Dr. S. said to Mr. Hanna, "Do you know me?" Mr. Hanna replied, "No, I am sure I never saw you before." Then Dr. V. G., whom Mr. Hanna knew and with whom he had had many conversations, came in; he likewise declared to have never seen him before. He knew nothing at this time of the psychological laboratory to which he had frequently been in his secondary state. In short, he knew nothing of events and persons since the first primary state. He remembered, however, everything that had happened up to the time of the accident and the events of the first primary state, and also *what, in that first primary state, was told to him about the secondary state.* Of the past few days, during which he had been in the secondary state, he had absolutely no recollection. The last thing he remembered was the room at Dr. G.'s house, and the conversation of the early morning (Tuesday), at which time he was in his primary state. Although it was now Saturday morning, when asked as to the day, Mr. Hanna said it was Wednesday. In his present state of mind, the consciousness of last events, time, place and circumstances of the primary state, was awakened and continued from the point left off. He at once noted the absence of Dr. G., whom he had met in the early morning of the 9th, when he was in the primary state.

When asked how he rested during the night, he said he had slept well. When asked to arise and dress, he said he felt weak and wanted to remain in bed. His limbs were somewhat stiff, and he found some difficulty in moving them. "I feel," he said, "a cramp in my knee," pointing to the left limb, which was flexed. Examination of the extremity did not reveal any sensory or motor disturbances. He repeatedly remarked that he felt extremely weak, as if after some severe exhaustion.

In conversation with Mr. Hanna, he was asked many de-

tails of his life up to the time of the accident. He gave exact accounts of them, showing a complete knowledge of his former life. He spoke of his university life, of his ordination as minister, of his experiences as a preacher, of his rescue of a woman in McKane County, Pennsylvania, during a severe storm in the mountains; he gave a description of his former friend Bustler; said that Bustler lived in Pottsville. In short, he gave a more or less complete biographical sketch of himself up to the time of the accident.

Mr. Hanna, in his secondary state, had been reading "Lorna Doone." In his present primary state, he was

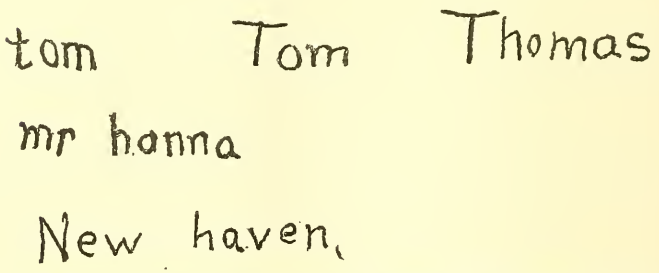


FIG. 20.—Specimen of Mr. Hanna's writing in the secondary state.

shown the novel and asked how much he had thus far read. He replied, "Why, I never read that book."

He was then asked about Miss C., who had faithfully nursed him for some weeks after the accident. Mr. Hanna now replied, "I have not seen her for nine weeks." When asked at this time concerning Miss C., he did not become angry, as he did the first time. He now knew we were familiar with the events of his life.

Mr. Hanna was then asked to write some sentences in English, Greek, German, Latin, Hebrew. (See reproduction of writing in each state, Figs. 21*a*, 21*b*.)

The sphygmograph was now produced in order to take pulse tracings. Although many tracings had been taken

in the secondary state and he in that state had handled the sphygmograph and had carefully examined it and shown great interest in its construction, when he was shown the instrument it was "entirely new to him." He had always in his secondary state assisted us in preparing the tracings and had become quite adept in the work. In the primary state, however, he had not the remotest idea how a tracing should be made.

He soon manifested a strong desire to sleep. He was restrained and was told that, as he himself had said, he had slept a long time, "since Wednesday," as he told us. "I felt so sleepy," he complained. "There must have been something wrong with me; perhaps I had delirium and fever." He was urged to overcome his inclination to sleep. Strong coffee and a good breakfast were given him to aid in prolonging the pri-

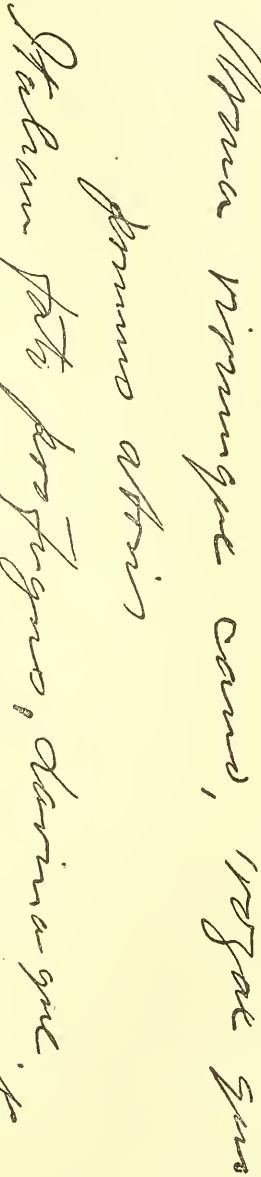


Fig. 21*a*.—Specimen of Mr. Hanna's writing in the primary state.

mary state. He was asked to dress and go out with Dr. S. for a walk, the intention being to prolong his present state.

He showed great physical weakness and pain in his muscles. He began to dress himself slowly, but could not find his shoes; he was looking about for them in vain. (He had removed them while in his secondary state, and now in

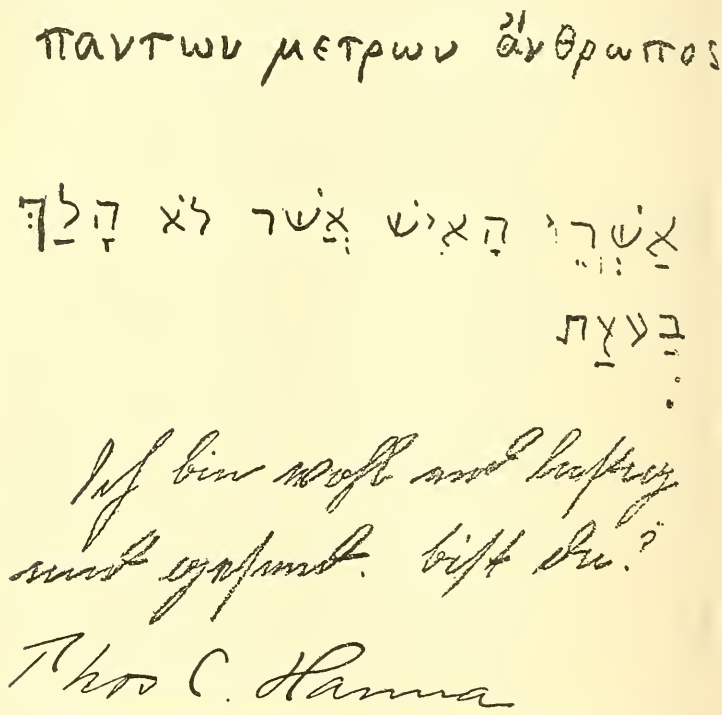


Fig. 21*b*.—Specimen of Mr. Hanna's writing in the primary state.

his primary state could not discover their whereabouts.) This caused him much chagrin, as he was naturally methodical and not absent-minded. The total loss of all memory as to what he had done with his clothing made him fairly desperate.

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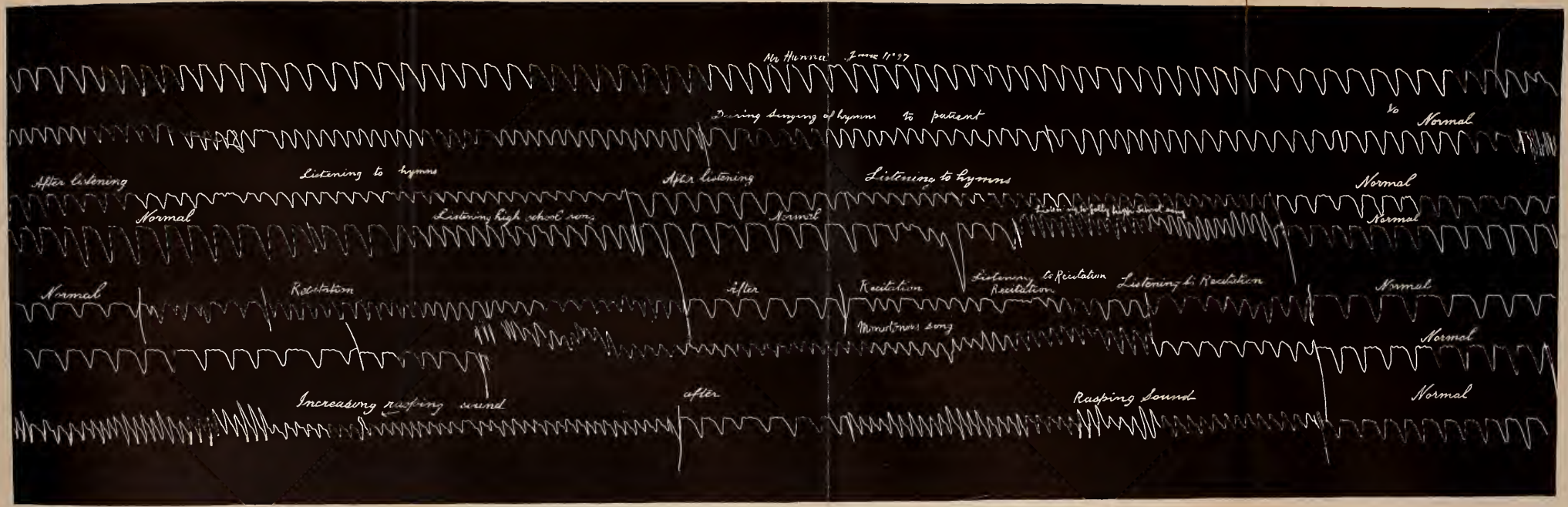

Pneumographic tracings taken of Mr. Hanna in secondary state. The first tracing is taken under normal conditions, that is, no stimuli are applied and the apparatus gives regular respiratory curves. In the rest of the tracings, after a short respiratory interval of normal respiration, stimulations of various character are applied, such as songs and hymns familiar to either the secondary or primary state, recitations of verses, various sensory stimuli, such as rasping sounds and so on. The reaction is quick, the respiration is greatly accelerated and the total change in character of the respiratory curve is strongly marked, showing the great sensitivity of the secondary personality to external stimulations.

He did not desire to take a walk, and as Dr. S. did not wish to leave him alone and let him lapse into the secondary state, we continued the conversation. (In a discussion of the history of Indo-European languages.) Mr. Hanna showed great mental acuteness and familiarity with literature and history. He also showed remarkable keenness in discussing the question of ethics, or the nature of right and wrong, of good and evil. He expressed himself clearly, logically and forcibly. When the conversation turned on *belles-lettres,* on realism and idealism, Mr. Hanna displayed a wide range of reading. On the whole, he manifested a remarkable intelligence and versatility of mind trained by a university education. We see now that the primary state was a full reproduction, morally, intellectually and even physically, of Mr. Hanna as he was at the time of the accident.

He was now overcome by an uncontrollable desire to sleep. His eyes began to close. He was urged to keep them open, but each time they seemed to drop in spite of his every effort. Dr. S. then endeavored to stimulate and arouse him. His limbs were moved violently, cold water was dashed in his face; he was pinched and otherwise mechanically stimulated. The onset of the somnolent state was irresistible. The lids closed; he could not control them. He fell into a state of unconsciousness. Every effort to keep him awake was futile. Even the mechanical opening of the lids did not bring response; he remained immovable. This state, which may be characterized as *hypnoleptic,* is of the highest importance both for theoretical and practical purposes. The nature of this state is discussed in another chapter. In this hypnoleptic state, Mr. Hanna was physically prostrated. He was like one dazed by a hard blow lapsing into unconsciousness. His muscular system was passive without the slightest rigidity. The conjunctival reflex was absent. There was absolute anæsthesia to touch and pain. He did not respond to the strongest, to the most intense and varied stimuli; nor did he react to loud shouts into his ears.

He was evidently in a state of diffused, disaggregated consciousness.[1]

This hypnoleptic state continued for about a minute. The onset of this state, at first gradual, became rapidly more intense, and by a kind of accumulative force from moment to moment finally plunged him into complete physical prostration and mental isolation from the external world.

The hypnoleptic state may be considered as an attack of sudden onset. It may be divided into two periods. The first is that of a rapidly increasing condition of extreme fatigue and of an overwhelming feeling of drowsiness, culminating in a second period, that of unconsciousness. A discussion of the two stages and their significance will appear farther on.

After a lapse of about one minute, Mr. Hanna suddenly regained consciousness, opened his eyes and was found to be in his secondary state.

He looked in surprise about him, wondered that he sat in a chair completely attired, and that his brother and Dr. S. were attending him. His last recollection was that of being in bed. He remembered distinctly, as he said, that he had retired, but he did not know how he happened to be fully dressed sitting comfortably in the chair. He felt exceedingly weak, and lay down upon the lounge. A condition of physical exhaustion, bordering on collapse, now superseded. He was cold, his skin was dry and pinched, the pulse was small, but not rapid. He complained of extreme cold. He found difficulty in moving his extremities. There was neither paralysis nor rigidity, nor was there catalepsy or negativismus. The arm passively raised dropped again inertly. Although fully conscious, as was evident from his appearance and from what he said afterward, he did not reply to questions put to him. When he was raised, he could not stand alone, but fell to the floor. In this condition, when touched, he seemed to be hyperæsthetic.

[1] See Sidis, Psychology of Suggestion, chap. xx.

CHAPTER XV

DUAL LIFE

In order to introduce again new psychic stimuli, Mr. Hanna was taken to see a popular variety performance. During his university life he had undoubtedly been familiar with the theatre; since entering, however, into religious work, this mode of entertainment had been severely frowned upon. We hence chose this visit as an admirable stimulus, because of its decided novelty to his present life, but not altogether foreign to his former early life experience. We wished likewise to observe how the young clergyman in his present secondary mental state would regard the gayety and life which one sees at such a place. We must remember that Mr. Hanna had "never" (*i.e.,* in his secondary state) been to theatre. Everything was new to him. The bright lights, the many faces, the brilliant costumes, the gay scenery, the witty remarks, the daring feats, the dancing, all greatly interested him. He was amazed, and absorbed everything with great avidity. He was frequently asked whether he enjoyed the scenes, and he invariably replied he did. It was amusing as well as instructive to see the naturally austere and dignified young minister readily learning in this his secondary state of mental metamorphosis to applaud the "highly" artistic, though somewhat ethically questionable, feats of the heel and toe.

Mr. Hanna drank two glasses of beer. When asked if he had tasted anything like that before, he replied he had not. "Do you like it?" he was asked, to which he said, "Oh, it tastes all right." It is of interest to note that the taste of beer must have been familiar to his subconscious

state, as it is rather improbable that a man tasting beer for the first time should find it "all right." The beverage had been known to him in his early college days, as it was brought out in his "hypnoidie" dream state. In his present mental state, Mr. Hanna did not know that beer was any different in its nature than any of the non-alcoholic beverages. He drank the beer as a matter of course.

On his return home with us, Mr. Hanna at once retired. As usual, he was watched carefully during the night.

He awoke only once, at 3 A.M., but was then also in his secondary state. He awoke at seven and was found to be in the primary state. He was already familiar with his apartment, but the last thing he remembered was that he was sitting completely dressed in a chair. He could not understand how he should at this time be in bed with no recollection of how he got there.

Although Mr. Hanna in his secondary state had seen Dr. G. the night before, he now asked for him, saying he had not seen him since Wednesday (the last primary state). This time likewise on awakening, as in the last primary state, he complained of muscular weakness and pain in his back. He also complained of a buzzing in his ear as if a "brass band" were there. This was probably due to the impression made by hearing the brass band at the roof garden the night previously, when he was in the secondary state.

We took occasion to test Mr. Hanna's memory in this primary state. The method of serial numerals was employed. His *memory was, for new impressions, far less retentive than in the secondary state.*

At breakfast he engaged in a long discussion with Dr. S. concerning the various philosophers from Plato to Hegel. He ably discussed the significance for modern philosophy of the Cartesian principle, "cogito ergo sum." He likewise discussed Kant, and said he had studied Baldwin's Psychology. When Professor James's essays, which Dr. S.

had in his hands, were shown him, Mr. Hanna smiled; said he knew of Professor James. He read paragraphs given to him with great ease and fully understood their meaning. One of the passages read had been given to him the day before, when in the secondary state. At that time he did not understand most of the words; the sense of the phrases was not comprehended at all, and as usual he said "never heard of Professor James."

As it was Sunday, we determined to take Mr. Hanna to church. We went to attend the services of his uncle, a well-known preacher in New York. The exactness of Mr. Hanna's memory was manifested when the question of his uncle's residence arose. Mr. Hanna's brother gave a street and number which he thought correct. Mr. Hanna at once changed the number, and it turned out that it was the correct one.

As we passed from the house to the street, he looked about with great curiosity. He did not recognize the scene as he had "never" been in this neighborhood when in the primary state. A few minutes later, as we were seated in the car, Mr. Hanna, in the same manner as previously described, fell into the hypnoleptic state. He remained in this state for about one minute. His eyes were firmly closed; he could not be aroused. We pricked him sharply with a pin, but he did not respond. Upon awaking, he complained at once of a feeling of pain where the pin-point had entered the skin, although he did not know the cause of the pain. *He had passed into the secondary state.* He remained in the primary state from 7.30 until 10 A.M. He was quite surprised to find himself seated with us in a Broadway cable-car. "Dear me!" exclaimed he, "I have the taste of that beer in my mouth yet." (It will be remembered he had taken the beer when in his secondary state. In the primary state in which he had been previously, however, he had not complained of the taste, and knew nothing about having taken any.)

Mr. Hanna asked, if we had been in the car all night. His last clear recollection was of being in the theatre the previous evening, although he had returned home and retired while still in the secondary state. Mr. Hanna, unaccustomed to alcoholic drink and also being more impressionable in the secondary state, had been slightly affected by the beer, which dimmed his faculties somewhat for events of the late evening.

Nothing of importance passed during the church service. After the services, Mr. Hanna was introduced by his brother to his uncle, the pastor. Although in the years before the accident he had spent much time at his uncle's house and knew him very well, it was now necessary to introduce the young man, who, of course, in the present psychic state, did not know his relative.

Mr. Hanna remained in his secondary state until the next day, June 14. He awoke at eight in the morning, having spent the night in the same apartment as previously. It was rather dark in the room. His first question was, "Where are we? Have we returned? How many days have passed?" When leaving the house in the primary psychic state, Sunday morning, it was his intention to go to Brooklyn after church and spend the afternoon with his relatives there. On the way to church in the car, as we have said, he had passed into the secondary state and remained in it until Monday morning, *when he awoke in the primary state.* His last recollection was of the latest events of the previous primary state, namely, leaving the house with the intention of going to church and then to Brooklyn. This explains his first question upon awaking.

At the house where Mr. Hanna stayed for several days was an attractive and intelligent young woman in whom Mr. Hanna, of the secondary state, became much interested. He confided much to her, and although he rarely spoke to others of his changing psychic condition, he revealed the whole story to the young lady who had won his confidence.

Mr. Hanna, now in the primary state, was told by his brother, in order to avoid the embarrassment of not recognizing those in the house, whom he had learned to know, while in the secondary state, to bow indiscriminately to all whom he met there. The equally indifferent and formal recognition of the young lady so much admired by Mr. Hanna of the secondary state, rather surprised and nettled her. In his present psychic state, she was just as strange to him as the others.

He was now taken to the psychological laboratory in order to take various tracings. The place and people there were all strange to him in his present primary state. Dr. V. G., to whom he had been introduced and with whom he had a long conversation while in the secondary state, he now passed by without recognition. He gazed with interest at the many "new things" he saw in the laboratory.

During the taking of tracings, we urged Mr. Hanna to resist all inclination to sleep, and endeavored by various stimuli to assist him. We explained that if he succumbed to his feeling of drowsiness, he would pass into the secondary state, and he himself was most anxious to have the primary state prolonged as long as possible. We tried to engage his attention and interest him. About 12.30 A.M. he began to manifest an inclination to sleep. We endeavored to counteract this tendency by talking loudly and emphatically to him, urging him to resist with all his power the drowsiness coming over him. He made a strenuous effort to assist us. Each time the feeling of sleepiness seemed fairly to overpower him, but it yielded to the intense efforts to keep up the waking state. Now he would drop into a sleepy state, and again he would open his eyes and give a response as we shouted into his ear or applied some strong physical stimuli. He seemed to alternate in his moments of sleep and awakening, and his responses showed that he was at one moment in the secondary and at

another in the primary state. He seemed to oscillate between sleep, or rather hypnolepsy, and the waking state, and his responses to our questions indicated now the presence of the primary, now that of the secondary state, and now of the *simultaneous presence of both.* Each time the stimuli aroused him from the state of hypnolepsy and each time the latter took possession of him; again he was aroused and again the hypnoleptic state gained the ascendency, until at last he fell into the deeper, the last stage of hypnolepsy. In this condition he was completely shut out from the external world and appeared to be in an unconscious state. The first stage of hypnolepsy continued for about five minutes, the last stage about three-quarters of a minute. He awoke, and as usual was *found to be in his secondary state.* The primary state had continued for about four and one-half hours.

CHAPTER XVI

THE STRUGGLE AND UNION OF ALTERNATING PERSONALITIES

Mr. Hanna was now taken out for a walk, and on the way stopped at Dr. G.'s office, about 4.30 in the afternoon of June 14. A discussion arose between Dr. S. and Mr. Hanna on various topics relating to religious and ministerial duties. Mr. Hanna was in a pleasant mood; there was observed, however, some absent-mindedness, as if something was working in the subconscious regions of his mind. His mind was lucid; his argument, as usual, was clear and forcible.

At Dr. G.'s office, Mr. Hanna lay down upon a lounge to rest. He soon fell into a condition of what appeared to be deep abstraction. He complained of a severe headache, which, he said, was "all over the head." The state of abstraction deepened; he turned his head away from us and lay immovable upon one side for some time. Although he was awake, he would not answer our interrogations and strongly resisted our efforts to change the position of his limbs.

In this condition Mr. Hanna remained for twenty minutes. The mouth temperature at this time was found to be 99.5 F., pulse 96 per minute.

When his brother addressed him, Mr. Hanna turned to him with eyes staring wildly, but did not reply. When an interrogation was put to him, he gazed in a dazed way at the question, but did not answer.

Five minutes later, when asked how he felt, he seemed to make an effort to comprehend, but still did not reply.

The pulse had dropped to 78; temperature remained as before.

We desired to ascertain whether Mr. Hanna could understand us and possessed voluntary control, at least of his eye muscles, because it was not possible to induce movements of other voluntary muscles. It was difficult to determine whether his failure to respond to our direction to him was due to loss of comprehension or to loss of voluntary control of his muscles. To determine this, a pencil was moved in various directions, and he was told to follow it with his eyes. At first he failed to respond, but later correctly used his eye muscles in looking at the pencil. There was no muscular paralysis, but rather want of comprehension.

A few minutes later he was able to answer "yes" and "no" to questions. It was necessary to repeat the questions four or five times before he grasped the meaning. We could not stimulate him to speak, although he apparently made every effort to do so. To determine whether Mr. Hanna's mental faculties were intact, and whether he understood speech, we told him to answer "Yes" when a sentence given contained a proper combination of words, and "No" to an incorrect nonsense combination. For example, when we would say white is black, five times eight are ten, his answer was "No"; fire burns, five times eight make forty, his reply was "Yes." His responses were uniformly correct, showing that comprehension was present.

During the entire time, Mr. Hanna was apparently in a state resembling that of mental stupor. His mind reacted sluggishly to the impressions from the external world; he was deeply absorbed within himself. Asked as to his headache, he replied "No," meaning by it that he no longer suffered pain.

We wished now to learn whether he was in his primary or secondary state. To ascertain this, we put questions

which would show familiarity with both states. His responses of "Yes" and "No" showed that he knew *directly* of both primary and secondary states. In order to be more certain, we spoke German to him. This language he knew only in the primary state, and he showed positive signs of comprehension. We asked questions concerning persons and events which had recently occurred in the secondary state and of which he had not been told when in the primary state. His correct responses proved to us beyond question that he now possessed knowledge of both states. In short, Mr. H. was in what we may term *the complete state.*

Gradually he began to recover his speech, but only slowly; he seemed to suffer from bradyphasia. The sentences in which he answered were short, and the words drawn out into their component syllables. Not only was he slow in his speech, but also in his movements, and in his reaction to external stimuli. His comprehension was dull, his mental activity was greatly retarded, his intellect was sluggish. This slowness of thought we may appropriately characterize by the term *bradylogia.*

At first we had to assist him to rise; he moved more or less mechanically until he seemed gradually to regain his power of voluntary locomotion.

He remained in this rather dazed state for about two hours. During this time he gradually came to himself, but his mental activity was greatly retarded, strongly contrasting with both his primary and secondary states. He was able to converse with us freely, but asked us to speak slowly and distinctly in order that he might comprehend what we said to him. This slowness of intellect had never before been manifested, neither in his normal state before the accident nor in the primary or secondary states. This condition gradually disappeared in the course of several weeks.

When Mr. Hanna was in a condition to enter into con-

versation with those about him, he was asked, if he could give an account of the peculiar state in which he had been in the afternoon. He told us he was fully conscious of all that had been said and done. When asked if he had voluntarily resisted our endeavors to flex his limbs and to turn him while he was lying upon the lounge, he answered that every movement at that time greatly disturbed him and acted painfully on his mind. What he meant by this will shortly be made clear to the reader. He was then asked to give a full account of his psychic state at that time; what his thoughts had been and through what experiences he had been mentally passing.

We were then informed that he was during those moments passing through an intense mental struggle; that it was a most critical period of his life. Here, also, we find the central point of Mr. Hanna's pathological state. Around this point of his life centres our interest, because it gives us a deep and clear insight into the nature of his subconscious state. Our observations that pointed to the presence of a slumbering, subconscious state of the lost experiences; our experiments on his memory, the hypnoidal and hypnoidic states that clearly revealed the actual existence of these memories and their possible rise to the surface of his life; our methods that had further substantiated our views by bringing about a crystallization of the two personalities that kept on, by constant stimulation, alternating in his upper consciousness; our methods employed with the object of bringing up simultaneously the two individualities having them confronted by each other, then forcing them into one synthetic living unity, all that was now once more substantiated by the crucial test of the expected and predicted final results, and by Mr. Hanna's subjective account of them. The objective and subjective lines of evidence as to the nature of the pathological processes coincided; Mr. Hanna's subjective account corroborated our views of the case.

Mr. Hanna told us that while lying upon the lounge, he had engaged in one of the most intense struggles he had ever experienced. The two personalities, that of the primary and that of the secondary state, arose simultaneously and confronted each other. Each of them was the "I" of Mr. Hanna, and still they differed from each other. He could not choose one only, because each was of the same nature as the other; they could not be joined, because they were two quite different personalities. Still, different as they were, they were not independent. Both were the ego of Mr. Hanna, and yet each so differed from the other. The struggle produced intense perplexity and perturbation. He felt that the two lives were his, and that they had to be synthetized into one ego. This seemed as impossible as to unify two different individualities and make of them one person. One could not possibly be abandoned and the other taken, because both came up constantly before him as though proclaiming, "We are one, though different!"

It was a critical period for Mr. Hanna; he was in a condition which one in a normal state can hardly realize. Two different individualities claimed his personal self. It was a struggle for life between two individualities formed in a single mind; each one endeavored to gain ascendency and to suppress, to crush the other; and still neither could be suppressed, because each was part and parcel of the other. There was only one way out of the difficulty, and that was the unification of the two. There was no alternative, the two had to be combined and form one ego. Mr. Hanna had reached a critical point, the situation was tragic and painful. Already in the psychological laboratory, before the painful and critical point came up, already there the conflict of personalities began. It was there for the first time that each of the separate, crystallized individualities caught, so to speak, a glimpse of each other; it was there, so he afterward told us, that the two lives came simultaneously before him, disappeared, rose, met,

disappeared again, and finally, as the secondary state came uppermost, the primary state for the time being, seemed to be suppressed, fell into the subconscious regions; but it did not remain there long; it came to the surface, and with renewed vigor defended its claim for life. The struggle was again resumed and it was just this painful situation that expressed itself in his present psycho-physical state.

These two-formed individualities, seemingly mortal foes, confronted each other for a long period of time, and in their very struggle recognized their intimate relationship, if not their *relationship of identity.* It seemed as if each said to the other, "Thou art my mortal foe, and yet thou art the bone of my bones and the flesh of my flesh." For each personality to crush, to suppress the other, was now out of the question; the difficulty, the problem for them, was *how to form a unity;* how to become synthetized into one conscious personality. The task was a difficult one, and could be achieved only at a loss of much mental energy. Hence the sluggishness of psychomotor activity, the slowness of movement, of speech, of reactions to external stimuli; hence the retardation of the whole stream of consciousness, the slow and difficult comprehension, hence the phenomena of bradyphasia and bradylogia.

Mr. Hanna gave us a personal account of his subjective experiences during the attack just described. The account was all the more valuable, because of his intelligence and excellent intellectual training.

We here reproduce verbatim his replies to our questions.

Mr. Hanna was asked to describe the manner in which he emerged into his present "complete" state. He replied:

"While I was sitting in the chair and fell into that sleep from which you made so many efforts to awaken me, the two lives, that of the primary and of the secondary state (in each state he knew indirectly of the other by information from us), came up for the first time. What agitated me most was the problem, which of the two lives I had been

living should be continued, which experiences I should accept as my own and make continuous. That was the first time I really had memory for the primary and secondary states simultaneously."

Q. Did the two states appear to you as different, and in what way? A. They seemed as any memory of the past, just as anyone's past life appears to him. They were, however, different. I had to choose between the two, which seemed to me a task impossible to perform. For instance, it would be impossible for you to take Dr. G.'s life and join it to your own, and hence if such a problem were to arise you would have to choose between the two and accept only one. It would be impossible for you to take both; one must go.

Q. How did the two memories appear to you? A. *As two different persons.* That moment in the laboratory was the first time when they appeared together and yet were separate. When I saw these two lives, I felt myself constrained to choose. The two lives appeared distinct and separate. Reason told me I was one, but there appeared two egos, and hence I had to choose between them.

Q. How did you know the two lives both belonged to you if they appeared as two different personalities? A. The first thing that made me think so was that I remembered in my primary state that you told me of a secondary state, and in the secondary, of a primary state alongside of the secondary; hence, when two individualities, both known as my own, appeared together, I thought they must be mine. There was also an *unexplainable feeling that both were mine.*

Q. Were these differences as distinct as between two real persons? A. I can't surely say, but you remember and are sure of what happens in your life and cannot say why you are. When I was in the primary state, I had memory for everything in that state, and when in the secondary state, I had memory for everything which occurred

in the secondary state. Now, when I was in that sleepy condition in the laboratory, the two states were together, each of precisely the same nature as it had been before; both states came together and were recognized. Before that, while in the one I did not recognize the existence of the other. I never realized that, if I should regain my memory, it would happen in such a strange way. I thought it would be like bringing up old memories as one ordinarily does. *In reality, it was like bringing to vision an entirely new life. In each memory the life seemed within the same body physically, the same physical being. It seemed to me, on reasoning, as if these were two bodies alike, like twins, perhaps, beings that had lived entirely different lives, or like twins of the same body, with tastes and natures very similar that had afterward become one. Mentally the two lives were very different; it was as if, for instance, you had the memory of your life and Dr. G.'s life as your own at once, or, better still, if you had the memory of Dr. G.'s experiences in another body similar to your own, bodies exactly alike, with similar dispositions, faculties and tastes.* You would think it impossible to join the two lives into one; they would seem so discontinuous and different. It was a struggle for me to decide which to choose. I had to leave one, because it was impossible for me to take both, it seemed too great a strain to take both. You see how hard it would be to take your own and Dr. G.'s life and make both your own; you would have to choose one.

Q. Which life did you prefer to accept? A. I was willing to take either. *The struggle was not so much to choose one as to forget the other.* I was trying to find which I might most easily forget. *It seemed impossible to forget one; both tried to persist in consciousness. It seemed as if each memory was stronger than my will,* and still I had to determine which to drive away. Just before lunch yesterday, in the psychological laboratory, I chose the secondary

life; it was strong and fresh and was able to persist. The primary was more clouded and easier to subdue. I tried alternately to throw away each, and succeeded at last in throwing away the primary and emerged into the secondary state. At Dr. G.'s office I had the same struggle over again.

Q. Why, when you were lying upon the lounge, did you resist our efforts to change your position? A. I wanted to be alone to decide which life to give up. At this time the question arose, whether I could not possibly take both, whether I should try and forsake either at all. I felt I must decide now whether to have this struggle daily, that is, to decide upon one only; I now wondered whether I might not accept both.

The first time the question arose I was in the intermediary state; the question was, *Which of the two lives I should reject?* The second question in my mind arose when I was at Dr. G.'s office. It was, whether I should take one or both lives. The second question was one that ought logically to have been decided prior to that considered the first time. I recognized that it was necessary to choose one or to take both. The question now was, whether one or both; the mental struggle was great, it was hard to decide. (Mr. Hanna found it extremely difficult to express the mental struggle of the two states.) I decided to take both lives as mine, because of the fear and anxiety that the struggle would be repeated again and again. The mental agony experienced in the struggle of the two lives was too great to endure; the decision had to be made. I determined to end the struggle, and make a final decision. I decided to accept both lives as mine—a condition that could not be worse than the uncertainty I was in. I then felt that the oft-repeated struggle would ruin my mind. The struggle was very severe and the mental agony great.

It never seemed possible to me that loss of one's memory could be so complete. I could not in either state prepare my mind for the amalgamation of the two states, be-

cause I couldn't realize them both together. I have now retained both memories; *I am sure both are mine. They are separate, and I cannot yet fit the two well together.* For instance, I can remember the hours of the primary state of Sunday morning, but I cannot recall just where to fit them in, and I do not know whether to put them before or after going to church. (Mr. Hanna, on the way to church, passed into the secondary state.) I cannot arrange the events in a chronological order. Secondary and primary states have breaks and intervals in them, as though there were periods of sleep. *The secondary state is stronger and brighter, but not more stable.*

Q. How about your picture dreams? A. I then called the vivid ones "dreams," but I think I should now call them *visions.*

Mr. Hanna was reminded that in Plantsville Dr. S. had read beginnings of Hebrew passages to him, and that he had continued the recital of the entire passage. He was now asked to describe his mental state at that time. He said:

"Yes, I remember that; it came to me then as when a quotation, for instance, is recalled to mind suddenly and one can't remember where or when it was learned. One does not realize he has ever learned or heard it before; he *can't associate it in his experience.* It came to me just like a mental flash. It *startled* me then, because for all the five weeks prior to that time and dating from the accident I had a clear recollection and association for all I knew; I had carefully retained all, but *that flash of 'unknown memory' was a wonder to me.* On reflection I realized it must belong to the past life about which I had been told so much."

Q. Do you remember that you fell from the carriage? A. Yes, I remember falling out of the carriage.

Q. What is the next you remember about the fall? A. I remember my brother going to help me, and then I went to sleep.

Q. And when did you wake up? A. In about three hours.

Q. After you awoke, were you able to speak? A. No.

Q. Could you have spoken by force of will? A. No, I didn't know a single word.

Q. Last night I asked you if you had made up your mind to have the two lives combined, is your mind made up fully now? A. Yes.

Q. Do you still consider them separate? A. I am sure they are both mine, *but they are separate in this sense, that I cannot fit the parts of one into the space of the other.* I do not know how to unify them. For instance, I can remember three hours when I was in the primary state one morning, but I do not know what date to fit that in. I remember rising, dressing and going to breakfast, and that is all I remember in the primary state, but I do not know when that was, what day that was. I have not learned to fit them in the chronological order. The secondary state has breaks in it that are like sleep, and the primary state has breaks in it also. I will have to learn the dates better before I am able to fit them together.

Q. Which of the two memories do you retain the most easily, the primary or secondary? A. Both alike, in a general way. The difference is that the secondary state is a little stronger and brighter, but it is no better maintained. There are more details in it, which I remember vividly.

Q. Have you any reasons more or less personal to care to remain rather in the primary or in the secondary state? A. No, I cannot choose now, I have decided.

Q. Have you any reasons, any personal reasons, to prefer to remain in the primary or in the secondary state or to retain both?[1] A. No.

Q. Last night you spoke to me as if you would like to remain in one state rather than the other; that there were

[1] Because of the sluggishness of the patient's comprehension at this time, some of the questions were necessarily repeated.

two reasons why you would prefer to remain in the primary state rather than in the secondary? A. No, I meant to say that there were moral questions that have come up before me since I have joined both. For instance, these two men that I spoke of last night, and similar things.

Q. Well, explain if you can. A. It is this, there are two men who, since the two states are joined into one, give me good reasons to change my relations to them. They would have been my enemies if they could. In my secondary state, of course, I did not know that; there was no one to tell me, and they took advantage of the secondary state, introduced themselves, and got promises that no one else would have been able to get. I tell you this as an example of questions that come in my mind since, because I have learned people differently in the secondary state, and compared with the complete state it makes quite a difference. Some people I cannot trust now that I did trust before. In my secondary state I believed every word they told me. I have simply given this to prove to you what has been passing through my mind since I have joined the two lives. It is a question to know what to do in this case. Whether to fulfil these promises I had made in one state and which I would not have made in my full state, or to try to compromise the two.

Q. Do you feel that you are responsible for the promises you have made in the secondary state? A. That is the question. You see, if they are contradictory, I cannot be responsible for both; but you can understand what a confusion there must be in a person's mind, for everyone that I have met with, old or new friends, has been in certain relations to me. I am not speaking of anyone in particular, but it is very confusing, and it will be confusing and embarrassing for them, too, for they have been explaining things to me and teaching me like a child to talk, and so on.

Mr. Hanna gave the above account in a clear, precise

way; slowly and apparently with mental effort, though with a full and exact idea of what he was intending to convey. The two personalities have merged their individual minds into one personal consciousness. The two individual lives have gone to form the complete healthy life of one individual, the present Mr. Hanna.

AUTOBIOGRAPHICAL SKETCH OF DUAL LIFE EXPERIENCE

About six months after Mr. Hanna's complete recovery, at our request he furnished us with the following personal account of his experience since the accident, April 15, 1897:

I

The first return to consciousness on the night of April 15, 1897, may be understood only by comparing it to the birth of a person possessed immediately of matured mental and physical functions. The first memories are the most vivid of all, and the difficulty in describing them is from want of a parallel as comparison. During the first rudiments of consciousness, there was absolute lack of knowledge that an outside world was in existence. The eyes were closed, there were no sounds to be heard and the power of motion was not yet known. How long this first state, without knowledge of anything in the material world, really lasted, is not possible to say. Simple memory would represent it as a period of many years, so great was the mental activity and so wonderful were even the meagre facts of consciousness. But the fact that absolutely no motion was made, even of the eyelids, and that no sound was heard, although the room was full of watchers, apparently indicates that the state was of but an instant's duration. In fact, later experiences which left on me the impression that would now be made by the life-happenings of many years, really continued only for a few moments, according to the positive testimony of others who observed them. Thus, if memory, with its present habits of comparison, was to be trusted for a verdict, my life for the

first few days would be declared to cover a few centuries, and this impression has been corrected only by force of the most vigorous reasoning on my part and the exercise of the perfect power of the will in forming beliefs.

The mental tension of the first state was relieved by a sensation of breathing. This was the first breath since the return of the sense of touch or "feeling," which was doubtless at the same time as the return of consciousness, and the sensation brought a feeling of intense wonder. Consciousness had apparently returned at the time of the full breath as this first sensation was of exhaling, as the lungs became empty and the heart-beat was felt. This was a new object of study and the mind was not slow to direct itself toward it. It is necessary to state in this connection that the local physicians of Plantsville, then attending, report that during the last half hour of unconsciousness the breathing was so faint and the heart-action so weak that at times even the most careful observation failed to distinguish either. This shows that at the first moment of consciousness the sense-perception was acute. There seems to have been an immediate, complete restoration of every mental and physical power, as the subsequent narration will continue to show. Inhalation and exhalation followed normally.

Although breathing was involuntary, yet the fact was noticed that its rapidity varied according to the degree in which the attention was fixed upon it. I remember the great effort to vary the breathing to every form from a short, quick gasp to a deep sigh. This I have been told was the first sign to the watchers of returning consciousness. In spite of all that the mind had experienced in that wonderful moment, those who had watched so carefully had been able to observe absolutely nothing of the return to conscious life or rather the birth into a new life. The violent exertion in varying the breathing brought to those present grave fears, although there was actually no danger. These were merely the experiments of a man who had just

found that he could breathe. During this breathing also the sense of hearing was first discovered, and it was almost instantly learned that the breathing could be made more or less distinctly heard, according to the wish. In this way the breathing became at times inaudible and again so loud as to amount almost to a snort. At this time the power of motion in the face was learned principally by the mouth and nostrils, and it was no wonder that those taking care of me were alarmed by the contortions of the face and the spasms of the chest.

Voices and movements were now heard in the room, breathing paused for a moment, arrested by this new wonder. On commencing once more the violent breathing and the movements of the face, the eyes suddenly opened quite involuntarily, and here indeed was a new world of wonder and study. Objects were all alike as to distance, shape and thickness, but the variety of color was the feature of interest. The room was a great, beautiful picture, absolutely without movement or distance beyond the eye. There was as yet no motion of the head or limbs, but the eyes were restlessly moving about as far as the field of vision allowed. Yet at the next breath the motion of the chest was seen, and in watching that, the head was felt to move. Having learned this new power, the head was soon turned here and there and rolled about ceaselessly until the violent effort soon caused a motion of the shoulders and then of the arms, which were tossing backward and forward and groping and feeling about in the great desire to learn all that was to be learned.

At this time one of the attendants standing near the door moved a step or two. Expecting that this motion, like the others, was connected with my own power, I reached out toward the person who had moved, and was much surprised at not being able to touch the object and repeat the movement. In the effort to reach farther and farther, the body and limbs came into use. After some effort I learned to

walk imperfectly a step or two, and persisting in the search, I reached the person who had moved, and gave him a vigorous push. I was well rewarded by seeing him move, but surprised that he directed his motion violently toward me. The other men in the room also came forward, and the fact dawned upon me, now too late, that there were others like myself in existence, and that they expected to have an influence in regulating my movements. They pushed me without much trouble back to the bed, but my unwillingness to be opposed was very great and another effort placed me beyond their control.

I have been asked many times to account for the remarkable strength then at my command, but I cannot do so. Furthermore, it is now my desire to give facts, not theories. My only thought was to resist with my utmost exertion the well-meant efforts of the men, who in turn misunderstood my motives. My only wish was to defeat them that I might be free from them. There was no idea of personal danger, and consequently no sense of fear. I gave myself to the object in view with a complete abandon that is proved by the wounds and bruises received which an experienced person would have guarded against, perhaps, by withholding some of his strength.

The three men who were first engaged with me in the struggle were all heavier than I and one was far taller. The first man to interest me was the one who had first moved and he was thrown to the door, and the others were pushed back. Another man caught me by the throat and this transferred my interest to him. He was soon thrown down and held fast, regardless of the efforts of the other two men to gain control. I meant no harm, and although two of the men were where I could have inflicted serious injury, I was satisfied to keep affairs in *statu quo* and none of us suffered except by bruises and lameness and dishevelled clothing. However, it was impossible for me to rise without releasing the one against whom I felt the greatest opposition as being

the one who had caught me by the throat. And thus we remained, neither side being able to gain the desired advantage until another man was summoned from the neighborhood. After another severe struggle, the four gained control, and my arms were tied behind my back. This produced considerable pain, but worst of all was the hateful feeling of helplessness, and so I was tossing and writhing as though in great agony.

At this time the family to whose house I had been brought returned and learned of the evening's experiences, and the desire was to release me from the painful restrictions. This was done without the knowledge of the attendants. I was heartily glad to be released and glad that there was no attempt to renew hostilities. The time was spent in watching those present, and wondering at the strange sounds and movements by which they seemed to understand each other.

I was beginning to see that people were kindly disposed toward me after all, and it was a great trial indeed that I was not able to talk as I saw them do, in order that I might tell them that my previous actions had resulted from a misunderstanding and not from intentional harm on my part. However, I was still suspicious of the attendants and would not allow anyone's hand near my throat or face. Soon exhaustion overcame me, and, as I am now told, the remainder of the night was spent in a comatose state.

II

The next day (Friday) the awakening brought a continuance of the experiences of the preceding evening. My great desire was to learn to talk and to this end I repeated every phrase I overheard, but I found that people either were puzzled or misunderstood my meaning. And so I gave up this attempt for the time being. I was suffering from great hunger, but did not know that it was possible to sat-

isfy my wants until at last a little food was brought and I was taught to drink from a glass. Having learned how to eat, I took nourishment so eagerly that there was fear to provide more, and my greatest inconvenience for the first two or three days was from hunger and the inability to state the need.

One of the friends at last appreciated the fact that I was fully able to learn to talk, but had merely lost the use of words, and she consequently set to work to teach me to talk. The first lesson was "apple." After hearing the word repeated several times, I understood that it was desired that I should say it likewise, and so I did, and was rewarded by being taught to eat the apple. Yet my idea of the meaning of the word was very vague. To me "apple" was an expression of the thought "food," and my constantly calling for "apple" was simply the expression of my desire to eat, although it was interpreted as an expression of an inordinate desire for fruit, and consequently my diet was even more restricted.

The next words were the imitation of the "tick-tick" of the watch, and the word "watch" itself. After this, words were learned with remarkable rapidity, needing to be explained only once in order to become permanently a part of my vocabulary. Of course, parts of speech other than nouns and verbs were more difficult of explanation, but everything was well understood as soon as it was made clear to me. It was, however, a long time before the use of the pronoun was substituted for the use of the proper name.

Strictly speaking, there was not a question of learning to talk, but rather of learning to understand. Every word could be correctly repeated without difficulty, and as soon as once satisfactorily explained, was always correctly used. The arduous task was to define each word in terms of the limited vocabulary already at command. Concrete nouns, especially the names of objects in the room, were easily learned, but certain verbs and other parts of speech were

hard of illustration. Expression by the hands and face were of great effect in presenting the root idea of a word, but often failed to make clear whether a noun, or verb, or adjective was intended.

After learning in this way by repetition, it was natural that the personal pronouns should present some difficulty. For example, "you" was understood as being the denominative applied to me, and "me" as applied to the one addressing me. Consequently, on commencing to use these words, I referred to myself as "you," and to the interlocutor as "me" or "I." It was some time before the fact could be learned that "I" and "you" might refer to the same person if used by different speakers.

While stating that a word once defined was always remembered, it must be acknowledged that a great many ridiculous mistakes were made, from the fact that only the first bare definition was known in exclusion of any shades of meaning, or of the scope of the term. A fowl was seen through the window and was described as a "black hen." I had already been taught the names of two or three colors, white, green and pink, but did not know the word "black" or the word "hen," consequently I understood "black-hen" as one word, the name of the creature. A moment later, seeing another fowl which was white, I referred to it as a "white black-hen." Having learned imperfectly the use of the word "talk," and understanding that it referred to the motion of the mouth, I at first described the process of eating as "talking" the food.

Long argument was required to convince me that I was a human being, or, as I then expressed it, "people." I had noticed that I had many of the physical characteristics of others, but as they were always walking or standing fully dressed for active daily life, able to talk and to act freely, while I was kept in bed and obliged to learn everything laboriously, led me to think that I was a creature of a different order. When told that some day I would walk about

and look like other people, I at once wished to know whether I would wear a dress, or a coat, or trousers.

Ideas of time were taught to me by holding a watch and naming as a minute the time required for the revolution of the second hand. Large divisions were defined with relation to this, but were at first scarcely understood, or at least scarcely realized, although constant reference to the watch and a comparison of its different indices were of assistance.

There was no idea of distance beyond a few feet. The out-door world appeared through the window as a picture whose details occasionally moved, as when a man or a dog passed or when the trees waved. The room was the world, into which persons came into existence or were annihilated at the doorway. It was soon evident, however, that persons carried on an existence outside the room, and later that by mentioning a person's name he would appear on the scene. And so everyone who had visited the room and whose name I had heard was called for, and I could by no means understand what was meant by saying that so-and-so was many miles away, or "lived down in Plantsville." I entertained the idea that everyone I had seen was just outside the door, and could have been reached at a moment's notice.

A mirror was given to me by chance, and seeing my image in it, I attempted to find the face behind the glass, but it had disappeared. Again and again the effort was made to find the person who had eyes and mouth which he could move as other persons could do. There was no idea that the face was a picture of anyone in the room until by chance the glass was turned so that other objects and persons were seen reflected in it, and on using a larger glass, the whole matter was explained.

III

Saturday morning, the absence of pain in the head was noticed. This pain had been severe, but had been ignored

by me, I suppose, because, being constant, I was not aware of it as an abnormal condition. Now that it was absent mostly, yet returning by spells, the difference between the normal condition and the condition of pain was appreciated, but it was puzzling to the attendants to hear now of severe pain in the head, when formerly none had been complained of. The pain was an intense, hot pressure, such as would be felt under a great weight of hot metal on the head. The periods of relief were so welcome that there was a desire to laugh hysterically or to get up and jump about. The pain was described by me as "big push on the head," which was to be interpreted as severe pressure on the head.

There was a great desire to see and become acquainted with people and to hear them talk. An extraordinary memory was manifested in afterward recognizing people once introduced to me. A general lively conversation was scarcely understood at all, but the meaning of a detached sentence could often be guessed by thinking over the words in all possible relations, so that sometimes much more was overheard by me than others suspected. However, as most of the remarks had reference to the accident or to my former life, their bearing was wholly incomprehensible, as there was no idea in my mind of my former life.

When my former life was first mentioned to me, I refused to accept it, being still suspicious of everything but the evidence of my own senses. This opinion would probably have been held until the general credibility of the friends had been established by other facts had it not been for one or two chance suggestions. Inquiring into the cause of the different color of the hands, face and neck from that of other portions of the body, it was accounted for as resulting from the sunlight upon such portions of the body as were unprotected by clothing. This was further illustrated by the same effect in the case of other men, and as it was a plausible explanation, there seemed a probability that I

also had at one time worn clothes like other men. This suggestion opened a new and wonderful world, and there was feverish eagerness to learn all the details of that other life.

These details seemed incredible, but there was no flaw in the consistency of the accounts given by different persons, and in fact other proofs were brought, such as my photograph, unmistakably like my own image in the mirror, yet dressed in clothing which I could not remember wearing at any time. Great was my disgust at being obliged to depend on others for an account of what I was accustomed to say and do, and of my appearance in that other life. Having learned that I had dressed and walked about, like other people, it was almost impossible to persuade me to remain in the bed, and in fact the only successful persuasive was the promise of the desired liberty in the near future.

The first attempts at walking were very crude, and the instructions of other persons only increased the awkwardness of the ludicrous performance. The promenade was confined to the one room, but a view had been obtained of the adjoining room, and great was the curiosity to learn the mystery of the other room.

The next day a conversation was overheard in which it was stated that "the men will come again." Now it must be explained that "the men" to my mind referred to the four people as they appeared and acted on the first night during the fearful struggle. Since then all the men had seen me and had excited no alarm or antagonism in my mind. There was a belief in my mind that the person was known by the expression of the face and by the name applied. Thus, while the name of some of them indicated the kindly, genial persons who came occasionally to chat with me and aid me in every way, on the other hand, "the men" indicated the harsh, determined fighters of the memorable Thursday night. Yet both were recognized as having the same general appearance and bodily form. As

soon as it was known that "the men" were coming, there was an irrepressible desire to leave the bedroom. So persistent was this wish that after repeated refusals by different friends, and with an unwillingness on my part to use violence again, the most earnest pleadings were entered upon. The pleadings were so urgent that some left the room from pity, and the others were at last persuaded to grant the request. The developments showed the fears to have been without foundation. A part of the night was passed in the other room, as it was termed, and then finding that "the men" did not return, and after obtaining the promise of going again to the other room at any time, I was satisfied to return to bed.

The next day, while walking in the other room, it became evident that the great blanket used as a garment was impeding the process of walking, and the piece of rope was picked up which had been used to secure my arms during the struggle of the first night, and which had caused me not only some pain, but a great horror of helplessness in the hands of "the men." On seeing this rope was to be passed around me, I misunderstood its purpose, and snatching it from the hands of the others, hurled it violently across the room. It was two or three days before I learned to dissociate the events of the first night from the facts of every-day life, and to appreciate that "the men" had been kind-hearted, but mistaken.

IV

In every respect the desire was to ape others, and this willingness was often played upon by friends for their own amusement rather than for the cultivation of any dignity or even self-respect in me. I could be induced to imitate with the most serious face any ridiculous performance, until I came to distinguish between the desire to teach and the desire to make sport.

It may be well to mention certain peculiar facts, which, although not scientifically ascertained, are positive facts of memory and are also vouched for by well-qualified observers. There was not only a remarkable acuteness of such faculties as sight, hearing, touch and memory, but there were well-witnessed feats which cannot ordinarily be accomplished by the five senses. A pair of handcuffs which had been brought for use on the night of the struggle, but were not used, happened to come to my passing notice. On observing that friends were reluctant about explaining their purpose, great curiosity and interest were aroused in me. As this interest grew, the apprehension of the friends also increased, and efforts were made to hide the articles in question. But wherever they were hidden, either up-stairs or down, even in an obscure closet at the other end of the house, I could, without hesitation, go to the spot and discover the article. This was without the article or its hiding-place being mentioned to anyone, and the latter being known only to the one having hidden the handcuffs. A small coin was many times held in a person's hand while I was asked to guess in which hand it was. The guess was correct in every case, and even when the coin was left out of both hands, I indicated the fact by a shake of the head. There was no consciousness of any faculty by which these things were ascertained, neither were the results by any means guesswork; there was a positive conviction. The sense appeared to be more like instinct. It was as though some reliable authority had told the fact, and then the telling had been forgotten, but the fact remembered.

Memory was extraordinarily acute. When a number of people were brought to the room, a complete mental picture was formed, so that I afterward could tell everything each person had done, the articles of dress, and a description of the features. This was the case even when there was a large number of persons, strangers even to my former life, and even when they remained but a moment in the room.

But beside this mental picture, there was memory of the names of the persons introduced, and of every word that they had distinctly spoken while present.

On going as before mentioned into other rooms, the fact was noticed that there were "two out-of-doors," and later that there were four "out-of-doors," as seen from the different windows. Still later it was learned by me with great wonder that the "four out-of-doors" were all one great "out-of-doors," completely surrounding the house. It was with much caution and hesitation that the first steps were taken out of the house. Instead of a draught of air through a window as the room had been aired, there was a volume of delicious atmosphere which gave an almost fearful impression of vastness. Stepping on the piazza, great was the surprise to see a floor without carpet or rugs, and the ground had even a more treacherous appearance, as it was some time before I could be convinced that it afforded a safe footing.

After touching the soft turf and reaching out in the expectation of touching the distant trees of the orchard as a child reaches out to grasp the moon, an idea was formed of the immensity of even that small portion of the world. A determination was at once arrived at to go as soon as permitted and walk and investigate all these wonders.

V

The distinction between animal and vegetable life was difficult to grasp. How could the trees wave if they were not alive? What was meant by growth when no motion was visible? The clouds in their motion were marvellous and were said to "boil," because their appearance and motion were like the steam from the tea-kettle, and as words were often misunderstood in their exact reference, the word "boil" was taken as describing the outward, visible effect, rather than the unseen process.

But of all the mysteries, life itself was the greatest. The first ideas were that this life so mysteriously begun would be continued for but a few days, and that even while it existed, other persons and things were constantly coming into being and going out again, as they appeared and disappeared. Even when told that life might last for many years, no conception of this fact was formed. There was no horror of the extinction of life. There was no knowledge of death. There was simply the thought that as there was a period of oblivion behind, so all at once again knowledge would cease. Later this brought great dissatisfaction, for the world was becoming so interesting, and life so dear, that it was with much regret that a thought was entertained of leaving everything. The belief was firm, probably taken for granted from the information that I had lived before the present consciousness, that there would be further future distinct existences, with complete forgetfulness of each preceding. These would differ from the separate experiences from day to day, because the latter were connected by a constant memory.

There was a noticeable passion for music. The first emotions on hearing beautiful vocal or instrumental music were pleasant, but this became so intense and such a powerful enthusiasm was felt as to have even a painful effect, and many times tears would flow down my cheeks. Hymns were the favorite selections, and yet the words were never listened to, but there was something direct and touching in the tune of such a hymn as "Jesus, Lover of My Soul." In fact, the effort to grasp the meaning of the words had invariably the effect of almost entirely destroying this intense delight. In vocal music, nothing depended on the words sung, but everything on the tunes, and the quality of the voice that rendered the songs. Even in conversation, the first quality noticed in a person was the voice. A beautiful voice was far more attractive than beauty of feature or ease of manner even of a kindly disposition. There was

no time when the kindly tone of voice could not prevail, when both harshness and inducement were useless. However, it must be said that this was not peculiar to the condition following the accident, but was rather intensified at that time.

In music, there was a phenomenal ear for discord, and a decided dislike. Sometimes two or three persons in another room would strike a number of chords strongly and make one very slight discord. The effect was to disguise the discord so that well-trained ears failed to observe it, yet I always detected it the moment the false note was sounded. No such effect was noticed, when the same chords were played without the false note.

One afternoon a friend brought a banjo, and although I had never handled one before, I learned in about an hour to play three selections, none of which I had ever heard in my previous life. Thus, in many ways it was proven that the readiness to learn was not confined to subjects with which there had formerly been familiarity. Both the banjo and the piano were learned at this time by mere imitation of the motion of others.

In attempts at writing there was equal facility with both hands, although preference was given to the left. There was a great perplexity and disgust at the use of so many forms of one letter, the printed and the script, the capitals and lower case of letters, to say nothing of the different letters of one sound, and the different sounds for one letter.

Yet there were desires to learn books and letters, and several hours were spent every day with a painstaking teacher in learning word by word of the mother-tongue as printed. A word once explained was permanent property, and yet there was great difficulty on the part of the teacher in remembering what words I knew, and which could therefore be used in defining the new words. In speaking, such expressions as a "pink pink" were confusing. "A white

rose'' or a ''purple violet'' were all well enough; but how could a flower be called by the name of a color, when some of the same were of other colors? What was the sense of a red pink or a white pink? Or if pink could be the name of a flower, how could there be a pink rose?

VI

Long walks soon became the fascination, and it was during one of these that the whistling of the little brown frogs in a neighboring pond brought into reality what had been considered the vaguest, dimmest dream, so unreal as not to be worth relating to anyone. But now there was a suggestion of reality, and on inquiry it was learned that the dim dream was a meagre memory of an actual occurrence. The memory was of lying back in my carriage (which I had lately seen and examined with curiosity) and with eyes almost closed, seeing nothing but a few lights and shadows, and the indistinct figure of the horse ahead racing along, as it seemed to me, at a frantic speed. My brother's voice was beside me, shouting loudly at the horse, but holding me with both hands and rubbing my cheeks and putting his face often to my lips. Then the last was the beautiful, soothing sound of the frogs whistling in the pond, and with an emotion of peculiar enjoyment I fell asleep, as it seemed, with that sound last in my ears. I attempted to recall something further, but nothing would return until the awakening and the awful struggle.

Carriage rides were soon permitted, but the walks were far preferable and I enjoyed them most when alone. It was vexatious to see some person coming over the hills to call me to dinner or with the announcement that some ''friend,'' who was nevertheless really a total stranger, had come and was very desirous of seeing me. Even to sit in one spot and think and dream by the hour was the height of enjoyment. At other times the endless flower life (just beginning to be

seen) and the birds and trees and sky were all the heart could wish. A sunset was the acme of beauty.

I had been told that the other members of the family were to come soon to see me, and after a description of them and an understanding as to what should be my bearing toward them, and what affection I owed them, there did spring up a strong desire to meet those whom I came in this strange way to love. The situation was further made plain by the evident affection between others who were mutually related.

At this time the first trip to New York was taken for medical consultation. The journey was full of happenings of interest, though the novelty was no more attractive than had been the visits to other houses in my native town. The whole world was so new and remarkable that a railway train or a twenty-story building were no more interesting than a cow or a hay-loft. It was later that these proportions were established. The ocean was the one view that made a truly powerful impression on the mind. The discussions with the doctor (not one of the two who finally and successfully took up the investigation of my case) were of interest and food for reflection. There was no encouragement to me in his statement of the possibility of recovery, because I was satisfied with the present condition, and in fact the descriptions given me of my former life had served only to confuse my mind, and I feared a recovery would involve an overwhelming and crushing revelation of multitudinous facts. It was later, on learning that the recovery would involve the acquisition of the knowledge once possessed, and which was now so much envied in others, that there was that strong desire, peculiar to the latter condition of regaining the past life. The advice was that there was no mental or physical deficiency and that I should recommence the lessons of life.

It was in this process that the second accident occurred. The accident, however, was not due to the condition, but

would have occurred to any other man in the same way. I was riding horseback, which was not difficult for me to learn. In riding at a high speed around a corner the stirrup strap broke under the strain, unavoidably throwing the rider. In falling, the saddle was caught and pulled awry, but despite this slight relief the fall was serious. The injury to the back was excruciatingly painful, and for a time prevented walking to the house. The after effects were even more serious, and compelled confinement under medical treatment for some weeks. The only disappointment to me was that I had not first learned more of the world before being shut out from it. Reading was also prevented almost wholly, although the lessons were in some measure continued.

VII

A period of discouragement followed the first relief from the pain of injury. There was always the thought that if there had been a few more days to see the world, it would have been easy to bear the confinement. However, as the days passed, there was much more hope in the faces of friends, and the future again looked bright.

About this time the specialists from New York, to whom I owe so much, commenced their visits and afforded subjects of immense interest. The first visit by one of the specialists from New York was doubtless for the purpose of satisfying himself of the nature of the trouble.

The habit of implicit obedience to the attendants, carefully formed in the past weeks, brought now a serious difficulty, for I was commanded by the specialists to remember certain facts in my past life, and it was wholly impossible for me to do so. The effect of this condition can never be understood by others, because, in the first place, an ordinary lapse of memory is different. Though a person forgets, he realizes that he has forgotten and that at once makes a

point of connection. In my case, while there was a vague belief in the testimony of friends that there had been a former life with such and such occurrences, yet this fact was not actually grasped in such a sense as to enable a realization of what remembering involved. In the second place, it is a frequent occurrence in ordinary life that a person is accustomed to forget, and by an effort, to remember, but in my case there had been absolutely no such thing as a conscious failure of memory since the accident, so that I did not know how to "remember," and could not understand how it was possible to "forget." Further, a person in ordinary life is accustomed to follow his own wish in questions of obedience. For a while he is desirous of granting the request of a friend; he knows that if the grant is impossible, he is at liberty to decline; but in my case I had, since the struggle on the first night, done nothing except to give implicit obedience, and the dilemma of an impossible obedience was a new one. There seemed to be something wrong with the machinery of the will.

Later, the memory tests under the direction of the specialists in charge of the case were of great importance to me, for while I evinced a memory far better than the normal, yet of course there were some figures or letters in the list that could not be recalled. This was the first conscious forgetting. There was a realization that something had been lost and a knowledge where to search for it. In a few cases the absent numbers were regained, and nearly all could be recognized when renamed by the examiner. This discovery of the possibility of forgetting and regaining made a profound impression upon me.

VIII

As to the character of my dreams, I may say that they were of two kinds, though it was not known that either kind was of importance till they were related by me at the re-

quest of the specialists. The ordinary dreams referred invariably to the life since the accident, and as this was the only life to me, these dreams were the only ones of interest to me. I found great amusement in comparing their circumstances with those of the real life, ridiculing their inconsistencies and wondering vastly at their connection with one another. These ordinary dreams differed from normal dreams only in that they were necessarily limited in their subjects and situations, and yet were more extravagant even "than a dream." The other "dreams" were an unconscious reliving of the early life.[1] To me they were the merest imagination, until I was assured by my friends that their scenes had been actual. They were not dreams in any true sense, but were actual memories by a mind so freed from the gross material of ordinary existence as to actually live in the past. Not only a faithful photograph was preserved, but a phonographic record as well, so that conversations could be remembered, and strange to say, conversations that otherwise have been wholly lost even to the normal memory. These were much more actual and vivid than dreams, and as I later learned were identical with the real experiences as far as the latter can now be remembered, the memory dreams reproducing details which are not now contradicted by memory, yet which have escaped amid a crowd of other matters.

In reference to the flashes[2] of the past during waking hours, it may be said that they came without an effort of the will, but were forced upon the mind. These flashes I felt as violent intrusion of ideas seemingly foreign, yet unavoidable. That they referred to the past life was believed by me on authority, but was not yet realized. When, on listening to the reading of Hebrew verses, I was able to repeat other verses from memory beyond those read by the

[1] Mr. Hanna refers here to hypnoidic states. He wrote this without reading our statement of the case.

[2] Mr. Hanna refers here to the hypnoidal states.

examiner, I felt as if they were being spoken by another mind using my tongue. When listening to a song, the names of two singers in a distant city came to my mind. I, however, had no memory of their having rendered the song or who they were. I could only remember the first names of the singers and the tones of their voices, and even these memories did not appear as such, but seemed like the statement of another person with my own voice.

IX

I was again taken to New York to undergo a thorough examination and a course of treatment. The tests were very trying to me, yet there was so great an interest in the proceedings as to prevent a refusal to submit to the treatment. After the first day of the novelty of city life, a novelty more evident now because of a wider experience, I awoke after a good night's sleep at about four o'clock, with the full knowledge of the past life, except what had occurred since the accident. The surprise was exceedingly great to find oneself in bed in a typical New York home, when the last memory was driving over the country roads of Connecticut. Even this memory was not immediate, but rather a general remembrance of being at home and at work. Fortunately, the room-mate was recognized as my brother, and the latter being rudely awakened by me, was challenged for an explanation. This being made hastily, I was cautioned to remain quiet, while a "friend" was called. This friend proved to be one of the specialists. Questions and answers flew so fast that it was some time before I could realize the state of the case. I utterly refused to believe the story of the accident and of the following weeks, and took the whole for a huge joke. This was natural, from the humor of the situation. The three persons by no means made a presentable appearance, yet all were apparently sincere, the doctor taking notes like a stenogra-

pher, the brother executing a war-dance in jubilation, and I racking my brains for some possible motive for such a practical joke. The doctor was then a stranger to me, so no confidence would be placed in him. The brother was continually bursting into fits of uncontrollable joy, the result of relief from so long a strain.

When questioned, I could recall events up to the time of my commencing to alight from the carriage. I told of having felt at the time an acute rheumatic pain in my knee which prevented its use. While attempting to relieve it by the other foot, the lap robe became entangled and swayed helplessly. This memory, then, harmonized with the statements of the others, and the conclusive proof was felt when a watch was seen to read 4.15, although daylight was appearing. I remembered well that at the date of my memorable drive, daylight would not have come till much later than 4.15. This convinced me of the lapse of considerable time in accordance with the statement of the others.

The physical sensation was of great weakness. There was a slight feeling of pain in the head, and my back felt weak. Otherwise I felt as well as usual.

Before long, however, an uncontrollable drowsiness came, and after some attempts to keep awake, I was allowed to fall asleep. The feeling of sleepiness was at the first entirely within my control, but not realizing the necessity of remaining awake, a necessity that was later impressed upon me by the specialists, and having partially yielded to this feeling of drowsiness, the will was powerless even to respond to the urgent requests to resist sleep. The drowsiness was powerful, bringing a delicious sense of rest hardly suggested by ordinary sleep. Being awakened out of a heavy sleep later in the morning, I knew nothing of the experience of the early hours, but was again living and acting according to the second life. It was only at a later date that I could learn what occurred during that half hour. The questions asked and the interest shown in regard to my

condition, even while I was feeling as usual, aroused my curiosity and surprise. At the next awakening to the normal, or at least to the "primary" [1] state, there was memory for what occurred in the last primary state. As the room and house were different, it was evident to me that there had been another lapse of time, and the first inquiry was, "How long has it been this time?" The next time curiosity was greatly aroused because, on coming into the secondary state, I found myself dressed and sitting in a chair, and with the comfortable feeling of a good breakfast already eaten, and an uncomfortable feeling of pin-holes in the flesh made by the doctor, while I was falling asleep. I had no knowledge of the pain when the needles pierced the skin, but felt a sharp pain on awaking. However, no information could be gained, and I was of the belief that I had fallen asleep, and during that time had been fed and dressed by others.

X

In the primary state I found myself making thoughtlessly a resolution that on again awaking in the secondary state I would not be alarmed at the change; but of course, at the next change, there was no memory of the resolution, and consequently, distress was felt. While in the one state, I was informed of my experiences in the other, so that I knew in an indirect way the state of things. It was thus that in each state I came to a determination to assist the scientists in effecting a cure. Yet as each resolution was not known to the other state, there was not the necessary harmony of action. One resolution was that while in the primary state an effort would be made by me to remain awake at all hazards day and night until a continuance in that state seemed probable. The other resolution made in the secondary state was to cling to the facts of that state

[1] Mr. Hanna had become familiar with the use of the terms primary and secondary states.

and that life with a grip of steel, yet to allow the passing into what the doctors called the intermediary state, when they would be able to give me the facts of the other life while I was holding to the present also.

The first mental struggle was during the very next primary state, which, by the doctors' earnest request and my own extraordinary effort, was already prolonged to three or four hours. All were assembled in the "laboratory"; the feeling of drowsiness had hitherto been resisted, but was growing continually more heavy, especially during the quiet of the experimenting.

In vain were these interesting proceedings watched by me, in vain were the efforts of all, even the needle-points, which were not felt yet were faintly known in the dim receding consciousness. Yet there was that determination to remain awake at all events, and the struggle continued in half-consciousness for a long time. Suddenly there was a glimpse of the secondary life, only a glimpse, it is true, yet a revelation of infinite wonder as being the first real insight into one state from the other. Instantly the thought came, "What is the use of enduring this severe struggle when invited into that attractive life, the secondary state?" This statement was not thus carefully formulated, but that was the impulse of the moment, the feeling was just to that effect. But saying mentally again, "What is the use?" there was a letting go, and the primary life was again lost.

While in the last instant of the primary state, as has been said, there was a glimpse of the secondary state, there was in the secondary state no memory whatever of the primary, but just the old unshaken determination to carry out as far as possible the plan of the doctors. They had a full understanding of this peculiar mental state, and so everything was ready for the decisive battle.

It came in the same house in which the first awaking to the primary state had taken place. It was early evening,

after a day of unusual activity and enjoyment, bringing great fatigue and drowsiness. Struggling against this, I felt a severe pain in the head. There was a regret of having bound oneself to such a resolution, yet a determination to stand by it at all hazards. There was every encouragement from the doctors, who were eagerly plying me with questions and insisting on facts of the experiences of the other state. The persons and places of the primary life (learned by the doctors by questioning friends and myself in my different states) were mentioned and strongly impressed upon my mind. Especially those persons whom I knew in both states, were referred to. I was still in the secondary state, but the other life dawned on me, and nothing but my will pertinaciously clung to the secondary state.

Both states were dim and only the doctors' tiresome repetitions and persistent hammering on the reluctant mind made them gradually more real. I felt quite vexed at what seemed the obstinacy of the doctors, yet was coming more and more to feel the force of their statements. Yet even now only the first position was gained in the conflict, for while both lives were presented to the mind, where was the possibility of combining them? And had I not lived and felt each life? Yet how could one person live and feel both lives? Here was the critical point. But the doctors persisted they were both *my* lives, and indeed I knew each one was, though it is impossible to take two men and make them both into one. But the lives were constantly becoming more and more personal, until at last, by a deliberate, voluntary act, the two were seized, and have both remained for half a year to the present date, though for some time after the recovery it was difficult to dovetail together the detached portions of each life so as to present a continuous history.

Mr. Hanna has fully recovered, the detached portions have become dovetailed, the two sharply defined personalities have been fused into one healthy, normal person.

PART III

CONSCIOUSNESS AND MULTIPLE PERSONALITY

By BORIS SIDIS

PART III

CONSCIOUSNESS AND MULTIPLE PERSONALITY

By Boris Sidis

CHAPTER I

THE MOMENT CONSCIOUSNESS

Moments of consciousness are not all of the same type. The moment consciousness of the infant differs from that of the adult, and the moment consciousness of the brute differs from that of man, and still they are all of the genus consciousness. Consciousness, therefore, must be assumed as not being uniform, as not representing one and the same type, but as having different stages, different types. Very frequently we find a confusion in psychology, a confusion which must by all means be avoided, in fact, it may even be termed the psychologist's fallacy. Whenever consciousness is spoken of, it is tacitly assumed as being that of the fully developed, adult human mind; lower types of consciousness are left out of account. Comparative psychology and the science of psychopathology have opened before us new regions of consciousness. We can no longer affirm with Descartes that consciousness is the privilege of human beings only and that all other animals are reflex machines, with no conscious accompaniment. We must also take into account our companions who stand lower in the stage of evolution; we must allow for the existence of animal consciousness, and once this is ad-

mitted, where is the boundary-line? The dog, the cat, the bird, the serpent, the fish, the worm, the bee, the ant—all have psychic life, all possess some form of consciousness, and where in the descending series of animal life can we possibly put a dividing line and say here consciousness ends? Mental life fades away in the animal series by slow degrees, and in the most humble living representative some elementary form of consciousness must be present. Psychiatry again shows us forms of abnormal mental life, forms of dissolving consciousness, such as idiocy, dementia, general paralysis, and other forms of insanity. In short, the normal adult human mind is certainly not the only form of mental life, and different types and stages of consciousness must be taken into consideration by the psychologist.

The fact that the different types and stages of consciousness are not clearly formulated and not always kept in view by the psychologist causes much confusion in psychological discussion. Thus, as we have just pointed out, whenever consciousness is spoken of, self-consciousness is always tacitly assumed. Whenever, therefore, this last form of psychic activity is absent, consciousness itself is said to be lacking, and if any act is the result, it is said to be a case of pure "automatism," the effect of unconscious physiological processes, with no conscious concomitant whatever. So great, in fact, is this confusion that a certain psychologist in discussing animal consciousness and its sleeping states, speaks of "the self-consciousness of the dove." Evidently the psychologist is under the impression that consciousness and self-consciousness are identical. But if, on the one hand, instead of mere consciousness, self-consciousness or consciousness of a personality is substituted, we meet, on the other hand, with an opposite fallacy due to the same confusion, namely, that whenever self-consciousness, or personality, is discussed, mere consciousness is substituted. The different types of consciousness are not recognized, and the whole field of psychological facts is, on account of

it, in hopeless confusion. What would we say of the biologist who, in describing organic life in general, would substitute human life, and in describing the human organism, would give a description of ants and cockroaches?

We must try to realize clearer the precise meaning of the "moment consciousness," as a clear comprehension of it is of the utmost importance to psychology in general and to psychopathology in particular.

Psychic contents or states of consciousness are always found in connection with some individuality. That piece of bread lying yonder may awaken hundreds of mental states under different conditions and in various organizations. My friend sitting by my side sees it, so do I, and so does the child, so does the bird in the cage, so does the dog, and so possibly does the fly flitting around the table. The states awakened are no doubt different, but they are of a psychic character none the less. My friend and I may be conscious of the personal element along with it. We may think it in the form of ownership; "it is we who think, we who have the thought of the bread"; but this is only one of the many forms under which the perception or thought of the bread may appear. One thing, however, is essential to all the various states, different as they may be in their content, and that is the fact that they belong to some one individuality which under certain special conditions may also be of the nature of a personality. The individuality may be of a high or of a very low type, it may be that of a man or it may be that of a fly, but it must be some *one* consciousness that synthetizes the psychic state. It is this *one* synthetizing consciousness that constitutes the essence of what we term "moment consciousness."

The moment consciousness is the subject, the psychobiological individuality, requisite in all psychic activity. The psychic individuality cannot be regarded as a series of independent physical events. For it may be asked, for whom does that series exist and to whom is it presented?

A synthetizing moment consciousness, both subject and content, is a fundamental assumption of psychology, just as space is that of geometry, and matter and force that of physics and chemistry. This necessity of assuming a synthetizing moment consciousness becomes clearly manifested in the highest form of psychic activity, such as self-consciousness. For if self-consciousness be reduced to a series, it may be pertinently asked with John Stuart Mill, "How can a series be aware of itself as a series?"

Now a moment consciousness must not be considered as something apart from its content; it does not exist by itself; it exists wherever and whenever psychic states are synthetized; it is the synthetized psychic material; mere synthesis without material is meaningless. On the whole, we may say that the moment consciousness is like an organism, it forms a whole of many constituent parts.

In the moment consciousness we find psychic material synthetized round one inmost central event which in its turn may have a central point. It reminds one strongly of the cell: although it branches out in all directions, it has always its inmost central point, its nucleus, nucleolus and nucleolinus. While I am sitting here writing, I take in the many impressions coming to me: the sunshine pouring through the window, the table, the ticking of the clock, the chair, the bookcase, and many other things in the room; all of them are formed and synthetized into one, and as such they form a moment consciousness. They are not, however, indifferently grouped; their unity is an organized whole with a centre, with a vital point, so to say. At the heart of that synthetized whole there is a central point, the grouping around which constitutes the individuality of the particular moment consciousness. In my own case, the central interesting point is the paper on which I write the sentence just formulated, and the inmost point, the principal idea under discussion which forms the nucleolinus, so to say, of the whole moment consciousness. The most interesting or

the most important experience forms the centre of the moment.

The same object which seemingly gives the same experience assumes different meanings and is therefore really quite a different experience, according to the moment consciousness in which the perception or knowledge of that object is synthetized. These presently experienced states, synthetized within the moment, form the matter, or what we may term the content of the moment consciousness. The moment of consciousness will change with the changes of the synthetized content. As an official, I am now in my office doing my work, and the different experiences form one whole, an association of experiences, systematized and synthetized into an organic unity. As a family man, I am at home enjoying the company of wife, children and friends, and once more the experiences are organized into the unity of a moment consciousness. Now I am climbing mountains and stand on the slippery edge of a precipice, now I enjoy a conversation with the maiden I love, now I take part in the excitement of the political arena, now I sit on the bench of the jury listening gravely to the cross-examination of witnesses in a murder case; all these form nuclei for the formation of different moments consciousness. All of these depend on the different central experiences that form the kernel for the moment consciousness. The central experience, round which all other experiences are grouped and synthetized, forms, so to say, the very essence of the given moment consciousness, and as long as this central experience remains unchanged in its central position, the new experiences are assimilated within the same moment consciousness. The moment consciousness, therefore, does not vary with the change of the content, if only the assimilating nucleus remains invariable. Should, however, the content vary so that the central experience is transposed and some other one occupies its place, then the moment consciousness itself is changed. In fact, we may have the con-

tent of the moment consciousness entirely unchanged; but if the central experience alone is displaced from its position, then the moment consciousness itself becomes changed in its nature. Thus, if as a traveller I climb the mountains chiefly for the sake of pleasure, and keep the scientific and æsthetic aspects in the background, the moment consciousness will be entirely different from the one where the scientific or æsthetic aspects are in the foreground, and all other considerations in the background. *The moment consciousness, we may say, is entirely determined by the leading central experience.*

The content of the moment consciousness, however, is not confined to the presently experienced psychic states only; it also embraces the past, it includes memory, that is, it synthetizes also outlived moments. In my present capacity of physician and working in the office, I may also include the experiences as traveller, as juror, as teacher, as companion and as lover, but still the tone of this particular moment consciousness is given by the official duties of my present occupation. The most vivid, interesting and leading experiences form in this synthesis the nucleus round which all other experiences are crystallized and synthetized into one organic whole. We have here a series of moments, all of them being co-ordinated and contained in one synthesis of one moment consciousness. The members of this synthetized series are not of equal value nor are they qualitatively the same. The leading experience that constitutes the assimilating element of the given moment has reality, interest and value, while others are only so much food, support for the principal central experience. This central experience differs also from the other experiences synthetized in the moment consciousness by the fact that it alone, that is, the nucleus only, has the most vivid psychic states, sensational and perceptional elements, while the others may totally lack them. Other subsidiary synthetized moments are rather of an ideational character;

they are what is called "reproductions," ideal representatives of formerly experienced outlived moments.

The moment consciousness may contain moments that happened to emerge by the dynamic processes of association, such as contiguity, similarity or contrast. Each moment consciousness may become content for the next. Each successive moment consciousness may synthetize the preceding ones, contain them in an abridged ideational form and may moreover recognize and claim them as belonging to itself, and as being one with them. There may, in short, be various forms of mental unification, but one thing stands out clear and that is the nature of the moment consciousness. The essence of the moment consciousness is *mental synthesis.*

If we take a cross-section of the moment consciousness and try to fixate it with our mental eye, we find a central psychic element round which other psychic elements are crystallized. This central psychic element is prominent, vivid, it forms, so to say, the vital point of all the states, and gives the tone to the rest, forming a whole, one organized experience. The psychic matter that surrounds the luminous central point does not stand in a free, more or less disconnected relation to the latter; it is intimately related to the centre, and cannot be separated without destroying the moment as a whole and even the life existence of each particular constituent. The whole moment seems to form an organic network in which the other elements take their place, according to a plan. The structure of the moment may in this respect be compared to that of the cell. In the cell we discriminate the nucleus round which the protoplasm is grouped. The protoplasm is connected with the nucleus by a network, a cyto-reticulum. The destruction of the nucleus affects the protoplasm and the destruction of the protoplasm affects the nucleus. The two are intimately, organically interrelated by the common network, the general plan of their organization.

A concrete example will perhaps best answer our purpose. Suppose the moment is perceptual and consists only of one percept. Now in the percept we find a central sensory element surrounded by other elements. This central element stands out prominently in the given psychic state, while the other elements are subordinate. Not that those elements are unimportant for the precept; on the contrary, they are of the highest consequence; they only lie outside the focus of the total psychic state. Along with the focus these elements form one organized whole. The intensity of the psychic state proceeds from the periphery to the centre. The elements can as little be separated from the central element as the area of the circle from its centre. By removing the centre the circle will be destroyed and the centre will cease to be what it is. All the elements of the percept form one vital texture having the central sensory element as its nucleus.

Integrated as all those elements are, they are not, however, of equal value and importance for the life existence of the whole. The central sensory element is of the utmost consequence; it is the vital point of the whole experience. While the change or destruction of one or of some of the subordinate elements may still leave the total percept unchanged, or but slightly modified, a change of the central sensory element, of the nucleus, will profoundly modify all the other elements and their interrelation; a destruction of the nucleus will destroy the percept, the total moment.

CHAPTER II

MENTAL ORGANIZATION

Moments of the same type form aggregations in an ascending series of complexity, groups, systems, communities, clusters and constellations. Isolated moments are organized into groups, groups into systems, systems into communities and communities into constellations. Groups are the most simple, while constellations are the highest and most complex of the aggregates. The firmness, the stability of organization, stands in direct relation to the complexity; the more complex an aggregation the less stable it is. The order of complexity also represents the order of development, so that the more complex is also the latest to appear in the course of evolution. Evolution and stability stand thus in inverse relation. What appears early in the course of development is more firmly organized than what appears later on. The whole tendency of evolution is from stability to instability. The order of growth and instability is in the ascending scale —from groups, through systems, communities, to clusters and constellations. The simpler sensori-motor reactions are both ontogenetically and phylogenetically first to appear in the course of evolution and they are also more stable than the more complex sensori-motor reactions. We can possibly best realize the relation of instability to complexity of structure if we regard life, including both physiological and psychic processes, as an ascending organization of sensori-motor reactions to the influences of external environment.

The sensori-motor reactions represent a hierarchy of organized aggregations, beginning in the lowest reflexes

and organic automatisms and culminating in the highest activity.

As illustrations of the lower processes we may take the knee-jerk, the action of the bladder, peristaltic movement of the intestines, respiratory movements, heart-beats and other organic activities. Associations among these various processes form higher aggregates. The complex co-ordination of orientation and space adjustments, such as the maintenance of equilibrium, walking, running, jumping, flying, swimming, and so on, represent more complex activities. A still higher aggregate is to be found in the association of groups and systems of sensori-motor reactions of a sense-organ with the complex co-ordination of motor adjustments of the whole body. The highest aggregates are to be found in the association of all the motor reactions organized within the different spheres of sense-organs with the complex motor co-ordinations of body adjustments. Simple sensori-motor reflexes, complex reflexes, sensori-motor co-ordinations, instinctive adaptations and intelligent adjustments, statically regarded, correspond to the classification of psychomotor aggregates into groups, systems, communities, clusters and constellations. In other words, the analysis of the sensori-motor constitution of the higher organized beings in their adult stages, reveals the presence and interrelation of those various sensori-motor aggregates.

Genetically regarded, we find that the history of the use and growth of the aggregates is in the order of their complexity. In ontogenesis we find that the simple reflexes appear first, then the more complex sensori-motor co-ordinations; later on the so-called instinctive adaptations begin to appear, while the intelligent and controlling adaptations are the latest to appear. The child at its birth is a purely reflex being; the different reflexes are not even associated, it is the medulla and the spinal cord that are pincipally active; the pupils react to light, the legs and hands react to more or less intense sensory stimuli, such

as tickling, and sensori-motor reflexes to taste stimuli are present. All of these reactions are isolated; they are so many simple groups of sensori-motor reflexes; even the sucking activity of the infant is largely of the reflex type; in short, the child at its birth is a spinal being, and its moment consciousness is desultory, consisting of the desultory activities of isolated functioning sensori-motor groups. Later on, the reflex activities become associated through the development of sight and kinæsthetic sensations. The eyes can follow an object, the hands become adapted to the seizing movements. Movements of body-co-ordination then begin to appear, such as turning the body to right or left, then sitting up, then creeping, standing, walking, talking, all involving greater and greater co-ordination of muscles and kinæsthetic sensations, aided by the association of sensations and sensori-motor reactions from different sense-organs. It is only very late in its history of development that the child begins to gain full control of its actions and adjustments to the stimuli coming from the external environment.

The history of phylogenesis runs a parallel course. The lower organisms are purely reflex in their sensori-motor reactions, and as such they belong to the type of the desultory moment consciousness. Instances may be found in the lower forms of the Mollusca. In the higher forms of Mollusca associations of sensori-motor reflexes begin to appear. These associations become more and more complex with the rise and growth of differentiation of sense-organs in the higher forms of Mollusca and the lower Arthropodes, giving rise to groups, systems, communities, reaching the cluster stage in the higher Arthropodes and the lower Mammalia, finally culminating in the high complex functions characteristic of the constellation stage, such as found in the sensori-motor reactions of man in his adaptations to physical and social surroundings.

CHAPTER III

THE CONSCIOUS AND THE SUBCONSCIOUS

If we turn now to the constitution of the moment consciousness, we find that each moment as it takes its place in the scale of evolution can both statically and ontogenetically be regarded as a summary, as an epitome of phylogenetic history. Each moment represents at the same time a hierarchy of many moments, but of lower types. The highest constellation has at its command lower types of psychic aggregates, and had it not been for these lower moments, the higher type would have lacked matter and activity for carrying on its own work.

The lower forms of moments, however, are subordinate to the higher type which constitutes the centre, the nucleus of the total psychic state. The other constituent moments, from the simplest to the most complex, are in the service of the highest type of moment and lie outside the central focus of the principal controlling moment consciousness. These lower forms are, however, by no means to be ignored, since they form the main sum of factors that determine indirectly the total psychic activity, they constitute the storehouse from which the central moment draws its material. Without the lower moments the principal controlling moment could not have received stimulations from the external environment, nor would it have been enabled to make proper motor responses. In fact, we may say that without the lower forms of moments, the moment nucleus would have lost its vitality and even its meaning. The perception of an object

and the proper adjustments to it depend not so much on what is directly present in the focus of consciousness, but on the wealth of accumulated material lying outside the focus. In reading a book, for instance, the handling of it, the motor adjustments in keeping it, the perception of the letters, of the words, of the phrases, lie outside the focus of the principal interesting thought that guides the growth of the moment; and still it is this mass of perceptions that forms the matter, the food supply of the controlling moment. The inventor, in working on his particular invention, has a mass of accumulated material and experience, indispensable for the development of the invention, but which is in the background of his consciousness. Similarly the mathematician in solving his problem, which forms the focus of his consciousness, possesses a body of knowledge or a mass of material which, though it lies in the periphery of his consciousness, still forms the mainstay of his particular investigation. There is more in consciousness than is actually directly present in the focus of the moment.

While I am writing these last phrases, my consciousness is only occupied with them, but they are supported by a body of thought that lies in the background. All our perception is largely determined by the results of our previous experience which as such falls outside the central point of consciousness. Many of the perceptual illusions find their explanation in habit. An otherwise novel experience surrounds itself with familiar experiences, which disguises the novelty and transforms the percept by substituting what is otherwise habitual. This mass of familiar experiences is not present in the focus of the moment consciousness; it lies outside the centre and is very often submerged in regard to the direct introspective scrutiny; and yet it has a powerful influence on the total activity in general and on that of the nucleus in particular. The submerged moments, though lying outside of the main focus, still exercise a great influence on the course

of the moment's growth and development. The conscious controls the material supplied by the subconscious, while the subconscious by its nature, by the quantity and quality of its material, in its turn, modifies and determines the course and direction of conscious activity.

CHAPTER IV

AUTOMATISM

Different as the active nucleus and the relatively passive protoplasmic mass are, no hard and fast line can be drawn between the two; they are constantly in the most intimate intercommunication, one passes into the other. With the formation of a new centre of activity, the old nucleus may pass into the general protoplasmic mass of the lower moments. This passing of the nucleus into the general protoplasm of the moment is a process that is constantly going on in the life history of the total moment consciousness.

As a new nucleus is taking the place of the old one, the latter retreats in the background and exercises its influence on the course of the psychic activity from behind the scenes, so to say. The potency of this influence is in proportion to the duration and intensity of the activity manifested by the old nucleus. We are all well acquainted with the commonplace fact that an action requiring at first great stress of attention, finally, with its repetition, drops out of the focus of consciousness and becomes, as it is called, automatic. They who have observed a child striving to stand by himself or beginning to walk realize how such seemingly automatic acts as standing or walking are at first accompanied with intense attention. The child, when standing up all by himself, does it hesitatingly; he shakes and trembles, as if occupying unsafe ground, or doing a difficult act; he looks around for support, stretches out his hands, asking the help of his parents or nurse, and if he does not get aid in time, begins to cry from sheer fear and drops on all-fours.

During the whole process of standing, simple as it appears to us, and lying as it does with us outside of the field of attention, the baby's mind is fully engrossed with the act of maintaining his equilibrium. It is a difficult feat for him. Withdraw his attention from his performance, and in the first stages of his series of trials he simply drops helplessly to the ground.

The same holds true in the case of walking. The child in beginning to walk, does it with great hesitation and fear. It can only be compared to the attempt of an adult in walking on a narrow board over a precipice or learning to walk on a rope. Each step as it is made requires full attention, each advance is a victory. The least distraction of attention and the baby falls down in a heap. The least change in the touch, muscular and kinæsthetic sensations coming from leg and foot will interfere with the successful attempt at standing or walking. Thus in the baby under my observation, after the first two days of more or less successful trials at walking, a new pair of shoes were put on him. The new peripheral stimuli and the strange sensations experienced at once told on the successful issue of his walking activity. The number of failures became so great that they finally arrested further attempts at walking. Only when the baby became accustomed to the new shoes and the sensations they gave rise to became so habitual that they fell in the background of his consciousness and no longer distracted his attention, it was only then, that the baby once more started a series of trials, and with such success that after two days' practice he walked almost a whole mile. After a period of long practice the complex muscular adjustments, required in the acts of standing and walking, gradually retreat to the background of consciousness and become automatic. Not that consciousness in those acts is lost; it has simply reached its necessary minimum, leaving the focus of consciousness free for other new and unaccustomed adjustments, which in their turn fall out of

the centre into the periphery, giving place to new experiences. To minimize the expenditure of neuron energy and reach the minimum of consciousness constitutes the tendency of psychomotor life.

We can fully realize the importance of this tendency, if we regard it from a teleological point of view. In the struggle for existence or in the economical system of competition of modern life, the saving of unnecessary expenditure, where only possible, is of the highest consequence. Those organisms that will best effect such an economy of energy will be the fittest to survive. Those organisms that are enabled to reduce to its minimum the friction and loss of neuron energy have the great advantage of possessing at their disposal a greater amount of energy to cope with new circumstances, with novel conditions and react better and in a more favorable way, when confronted with changes in this environment. This economizing becomes absolutely indispensable to the life-existence of higher organisms, the environment of which is always highly complex. The reduction of psychomotor activity to the least amount of psychophysiological energy expenditure, in other words, to the minimum of consciousness, is the law of psychomotor life in general and of the highest representation of that life in particular.

CHAPTER V

THE PSYCHIC MINIMUM

This economizing is by no means an endless process; there is a certain minimum of consciousness beyond which the psychic states cannot pass. This minimum of consciousness once reached, must remain stationary, for a fall below it is the arrest of the activity of that aggregate. In other words, there is a certain minimum below which consciousness cannot be reduced with impunity. Reduce the consciousness of the total psychic state by lowering the sensibility of its constituents or by raising the threshold of consciousness and the whole aggregate will cease to function. Diminution of the stimulus to which the aggregate has adapted itself in the course of its growth, both phylogenetic and ontogenetic, gives the same results; the aggregate does not respond. Either a summation of successive small stimuli or an intense stimulus that should reach the threshold is requisite to set the aggregate into activity. In short, a minimum of consciousness is always required for the proper functioning of mental aggregates.

This condition of minimum of consciousness requisite for the proper function of lower mental aggregates is clearly seen in different forms of pathological cases.

In the initial stages of tabes, when the kinæsthetic sensations of the feet and legs become hypoæsthetic, the patient is unable to walk well and must be guided by visual sensations, so that when his eyes are closed, he stumbles. Although he may feel that his limbs were moved, if the passive movement is quick and through a considerable angle, so that the stimulus is intense, he still does not know the direc-

tion of the movement, nor is he aware of the position of the limb when left to itself. Similarly in cases of onset or slowly recovering hemiplegia, the sensibility falling below the requisite minimum produces a total failure in the sensori-motor adjustments; the patient has to learn to make his adjustments by means of content coming from the visual sense.

As a good illustration of the point in question, I may mention a very interesting case of my own now under investigation. The patient suffers from tactile anæsthesia all over the trunk, with the exception of neck and face and lower extremities; the other sensations, such as those of temperature, pain, pressure, muscular sense and kinæsthesis, are greatly diminished. The patient does not feel one short, sudden stimulus, such as a prick, pinch, burn, but only a long continuous stimulus, or a quick succession of more or less intense stimuli. The patient is unable to adapt herself to the changes of external environment and often hurts herself, before she becomes aware of danger and is enabled to react and ward off the harmful stimulus. The aggregates with a reduced minimum of consciousness fail in their function and are unable to adjust themselves to the external environment.

This failure to function in case of fall below the standard minimum is still further illustrated in the diminution of the patient's muscular sensibility. If she is told to close her eyes, and her arm is taken roughly and given a quick and sharp wrench, she is aware of the movement and also of its direction. If, however, the same passive movement is produced slowly, gently, by degrees, then the patient is unaware both of the movement and direction; even if the hand has been rotated in a circle, or raised in a horizontal position from a position of repose close to the body, the patient thinks that the hand has not moved and is still in the same place. If now the patient is told to touch a part of her body, such, for instance, as the nose, eye, or

ear, the attempt is often a failure, on account of the unnecessary extra amount of energy put forth in the muscular effort of bringing the hand in the required position. This extra amount of effort put forth is determined by the extent of hypoæsthesia and the false notion of the position of the arm.

If the experiment is somewhat modified and the arm is raised a little faster, so that the patient becomes aware of the changed position, of the movement, but not of the direction, the results are no less interesting. If under such conditions the patient is asked to put the hand to the nose, eye, or ear, the answer is uniformly the same: "I cannot; I do not know where the hand is." Once more the sensorimotor aggregate, with its lowered minimum of consciousness, fails to act and carry out its adjustments to its surroundings.

A variation of the experiments leads again to the same conclusion. If the patient, with the hand at rest, is told to raise it, and when she starts the movement the hand is seized and kept forcibly, the patient, after making strained efforts finally declares that the hand is raised; the sensorimotor aggregate fails to act and make the proper adaptations.

A further variation of the experiment reveals still clearer the paralysis of an aggregate with a lowered psychic minimum. If the arm is half raised and the patient, with the eyes closed, is told to raise it still higher, and as soon as the patient starts the movement the hand is seized and moved in a different direction, after some time she declares that the hand is raised, although the hand is in a much lower position than the original one. Once more we find that a lowering of the minimum of consciousness of a psychic aggregate brings about a complete failure of adjustment and is equivalent to a paralysis of its function. A definite *minimum* of consciousness is the *sine qua non* of psychic aggregates.

CHAPTER VI

THE FADING MOMENTS

The hierarchy of moments, from the lowest to the highest, belonging to one organized constellation of moments, may be arranged in a series as to intensity and vividness of consciousness ranging from minimum to maximum through all degrees of intensity and vividness. The maximum of intensity is in the focus, in the nucleus of the moment, the minimum is at the periphery. Now a moment through frequent functioning gradually loses intensity and vividness and passes by degrees through all the intermediary stages from maximum to minimum. The fading moment passes by degrees from the centre to the periphery of consciousness. Under other conditions, such as the hypnotic trance, the moment may become suddenly submerged.

As a case in point I bring the following experiment, made by me in the presence of Dr. Van Gieson, former Director of the Pathological Institute of the New York State Hospitals:

I hypnotized Mr. V. F., and suggested to him that on awakening he should not recognize any of the people present, and that two or three minutes later he should throw out of the chair the gentleman whom he found sitting near by. That gentleman was Dr. Van Gieson, for whom the subject had the highest respect, and whom he would not have touched in his normal waking state.

Before arousing the subject from the trance I took good care to dissociate the memories by suggesting amnesia.

The subject was then awakened. He looked round in a dazed way, as one who found himself in the company of utter strangers. He did not recognize any of his acquaintances, nor did he manifest the least sign of recognition of a near friend of his who was present at the experiments.

About two minutes after awakening he suddenly turned to Dr. Van Gieson, who was at that time sitting reading, and exclaimed gruffly: "I want that seat." Without waiting for a reply, V. F. made a sudden onset, vehemently attacked the struggling doctor, seized him by the shoulders, pulled him out of the chair, and gave him a violent push. All this transpired in the twinkling of an eye, so that Dr. Van Gieson had no time to collect himself and show resistance.

When Dr. Van Gieson asked V. F. why the latter offended him without provocation, the subject answered, "because he wanted the seat." When Dr. Van Gieson pressed him further to give his reasons why he did not ask for the seat in a polite way, and, besides, what right he had to throw a strange gentleman out of a seat while there were so many others which he could occupy as comfortably, the subject's argument was that in this world the mere desire of having a thing is a sufficient reason and a good right. When it was still insisted on his giving a better reason than that, the subject became angry and snappishly replied he wished Dr. Van Gieson would "shut up," and said he was sorry he had not made him shut up before, as the gentleman seemed to be very loquacious.

A quarter of an hour later the subject was brought into a passive state. Amnesia of the incident was enforced, and the subject was then awakened. Mr. V. F. woke up oblivious of the whole affair. Only when I inquired of him, he told me he had a vague dream that he quarrelled with someone, but he did not know the person, nor did he remember the circumstances. The subject regarded it as a mere idle dream, and gave no further attention to it. Mr.

V. F. is until now in complete ignorance of the whole affair. The whole incident faded from his conscious memory.

If, however, the intensity and vividness of consciousness decrease from the centre to the periphery, the extent of content increases. The further away from the centre the greater is the number of the fading moments. At the periphery the number of moments is also the greatest. The immense number of outlived moments gradually fades away with the lapse of time and tends to pass to the periphery of consciousness. It is clear, then, that as we pass from the centre to the periphery the number of outlived moments increases proportionately. The deeper the regions of the subconscious the wider the extent of its contents. In hypnosis the intensity of consciousness becomes diffused over lower and lower moments, liberating their pent-up energy, and as with the depth of hypnosis the obscure regions of the subconscious come to light, their immense extent stands revealed before the astonished and bewildered eye of the observing self-consciousness.

A lighting up of the subconscious regions can also be brought about by the use of toxic drugs. The pent-up neuron energy becomes liberated from lower and lowermost moment, consciousness becomes concomitantly manifested and long forgotten experiences well up to the centre of consciousness; outlived moments become resurrected and rise to the surface of full consciousness with all the vividness of a present reality. Thus De Quincey, in his "Confessions of an English Opium-Eater," tells us that "the minutest incidents of childhood or forgotten scenes of later years were often revived. I could not be said to recollect them, for if I had been told of them when waking, I should not have been able to acknowledge them as my past experience. But placed as they were before me in dreams like intuitions and clothed in all their evanescent circumstances, and accompanying feelings, I recognized them instantaneously."

Hypnoidic states such as described by me in previous works [1] also reveal the wealth and extent of psychic content present in the lower subconscious regions. Glimpses into the subconscious are also given in hypnoidal states which are induced by the process of hypnoidization. The patient is asked to close his eyes and keep as quiet as possible without, however, making any special effort to put himself into such a state. He is then asked to tell anything that comes into his mind. The patient may also be asked to attend to some stimuli, such as reading or writing or the buzzing of an electrical current, and he is then to tell the ideas, thoughts, images, phrases, no matter how disconnected, that happen to flitter through his mind. This same condition of hypnoidization is sometimes better accomplished through mental strain. The patient is put into a quiet condition, and with his eyes closed and the experimenter's hand on the patient's forehead, the latter is urged to mental effort and strain, and, if necessary, given some hints. Experiences seemingly inaccessible flash lightning-like on the upper regions of self-consciousness, revealing the depths below.

[1] See Sidis, Psychology of Suggestion and Psychopathological Researches.

CHAPTER VII

THE BRIGHTENED MOMENTS

We have until now mainly viewed psychic or moment content as passing from the centre to the periphery of consciousness through varying degrees of intensity, from maximum to minimum, the movement being from the conscious to the subconscious. There is no need, however, that this should always be the case. Experiences may first be perceived by the subconscious regions and then only transmitted to the conscious regions, the movement thus occurring in the opposite direction, from the subconscious to the conscious. Experiences, for instance, lived through in dreams, which belong to the subconscious states, may come to the surface as hypnoidal states and then become synthetized in the upper waking consciousness, or they may be lighted up in hypnosis and then permanently synthetized in the centre of consciousness.

The following case, which I quote from my notes, may serve as an illustration:

The patient suffers from headaches, which are sometimes very severe; feels pain on concentration of the mind. She often reads a page over and over again and is entirely unable to make out the meaning. She feels completely paralyzed in her will, and whatever she does is more of a mechanical affair to her. She has not the slightest interest in anything. When young, patient was very musical, but since her twenty-fourth year she lost her musical talent—at least, she feels she has not the power she possessed once. Her memory is growing worse since then, until she is now unable to remember anything. She can now read and play,

but it is mechanical, without the power and feeling she possessed once. Her headaches are severe, dull, but rather irregular as to their onset. Patient is very restless in her sleep, moans, wakes up as if in a great fright, but does not remember the dreams. Sometimes she moans and cries in her sleep and has to be awakened by her husband. Occasionally she has periods of insomnia. She is a very active dreamer; the dream-life has become predominant and has absorbed and sucked down, so to say, the content of her waking consciousness.

She went into a deep hypnotic state, and gradually the dream of the night before unfolded itself before the patient as if she were living the same experiences over again. "I see a very high tower—I am there—something I don't like—the window—I feel—" Patient became very agitated. She was quieted, and she went on: "I am in space—I am falling—I don't know where I am—I can't get down—I don't know what keeps me there." Patient became greatly agitated, greatly frightened, as one actually falling and becoming suspended in the air; she sighed and breathed hard. "I want to get down. I am hanging in the air," she cried out in despair and fright. Patient, in great excitement and with her eyes closed, suddenly jumped from the couch. (Pulse about 90.) After a few moments, patient says: "Now I am down—I am on the ground. I hurt myself and got a headache." The whole experience was of a very highly developed hallucinatory state, a hypnoidic state, which she was able to recollect on emerging from the hypnotic state.

Similarly experiences first lived through in the subconscious states induced by alcoholic intoxication may be brought by hypnoidal states or by hypnosis into the focus of consciousness. Hypnoidal states are specially important; they are uprushes of the subconscious, and by means of them many a hidden and obscure region of the subconscious may be laid bare. Thus the Hanna case was largely

marked by hypnoidal states. In another case of mine, characterized by subconscious lapses, furious maniacal outbreaks preceded by an aura, followed by long sleep of fifteen hours' duration, and by complete amnesia of what had occurred during the lapses, the hypnoidal states were the only means by which the experiences, passed through during the subconscious lapses, became completely revealed. Similarly in another case of amnesia, the hypnoidal states have given glimpses into subconscious regions which even deep hypnosis could not reveal. There is no need of devoting space to the cases here, as our purpose is only to show that the movement of moments may originally occur in the reverse direction from the peripheral subconscious regions to the centre of consciousness, and also to indicate the fact of the great value of hypnoidal states in bringing about such a reversion of movements.

The method of guesses is also valuable in the investigation, showing the reverse process of mental activity, the passage of a state that has been subconsciously experienced into the focus of consciousness. If in a case of psychopathic anæsthesia, a form of anæsthesia where sensibility of the anæsthetic spot is really present in the subconscious in a hyperæsthetic form, if the anæsthetic spot is stimulated, the patient is not aware of it; should he, however, be asked to guess, or to tell anything that happens to come into his mind, he is often found to give correct answers even in minor details. The patient perceives subconsciously, and this perception, often in a slightly modified form, is transmitted to the upper consciousness, or to what for the present constitutes the patient's principal moment consciousness or personality. If, for instance, the anæsthetic spot of the patient is pricked a number of times, the patient remains quiet and is seemingly insensible. Should we now ask the patient to tell anything that comes into his head, he will say "pricking," and will be unable to tell why he happened to think of "pricking" at all. Should we now

ask him to give any number that may enter his mind, he will give the correct number, once more not being able to give the reason why this particular number happened to enter into his mind, considering it a mere "chance number." The subconscious sensations experienced are transmitted as ideas to the focus of consciousness. Sometimes instead of the particular idea being transmitted, only the general aspect of it reaches the focus. Thus the patient may not be able to guess the particular nature of the stimulus, but may give the correct number of the unfelt stimuli, showing the reverse movement of the psychic state.

This reverse movement of the psychic state, from the originally subconscious to the upper consciousness, is well manifested in a case under investigation. The patient's field of vision is extremely limited. If objects are inserted in a zone extending from the periphery of the narrowed field to the utmost boundary of the normal field, and the patient is asked to tell anything that happens to enter the mind at that time, and to do it without any deliberation, the words, seemingly chance words to the patient, are almost uniformly correct names of the inserted objects. On the periphery of that "subconscious" zone only general guesses are correct. Thus, if letters and numbers are inserted, the patient thinks of the particular letter or number, when exhibited within the "subconscious" zone. At the periphery of the zone, however, only the general character comes into the mind, namely, letters or numbers, but not the particular character itself. Some of the phenomena of paramnesia can be explained by this principle of reverse movement, when subconscious experiences transmitted to central consciousness appear under the form of "familiar" memories, such as was shown to be the case with the proof-reader described in another chapter.

CHAPTER VIII

TRANSMUTATION OF SUBCONSCIOUS MESSAGES

The movement of the moment from the subconscious to the nucleus of self-consciousness may sometimes take a different course. Instead of being centrally transmitted from the subconscious to the centre of the upper consciousness, the experience is projected into the external world in the form of a hallucination and then only perceived by the dominating moment consciousness.

This process of reversion is met with in the phenomena of crystal gazing. In these phenomena experiences acquired subconsciously are projected into the crystal in the form of visual hallucinations. The crystal gazer sees in the crystal, images, pictures of events which he cannot remember directly, but which can be found in his subconscious. The changing light and shade due to reflection and refraction give rise to peripheral sensory processes which form the nucleus, the suggestion that awakens those subconscious psychic states. Experiences mainly of one sensory nature may be transformed into and assume the character of another sense; thus experiences, mainly of an auditory character, may be projected into the crystal as visual hallucinations.

In the phenomena of shell hearing, we meet once more with a similar process of reversion. Psychic states originally experienced by the subconscious are objectified in the shell as auditory hallucinations. The vague, indistinct buzzing coming from the shell affects the sense-organ and gives rise to a peripheral process that forms the nucleus round which the subconscious experiences become crystal-

lized and projected in the form of auditory hallucinations. Here, too, as in the case of crystal gazing, experiences of one sensory character may be transformed into that of another. Psychic states originally of a visual character become auditory on being projected by this reverse movement from the subconscious to the central consciousness.

In automatic writing we meet once more with a similar process of reversion, only under a somewhat different form. The subconsciously acquired experiences, instead of being in a sensory form as hallucinations, are motor in character; they are expressed as written words, and by this means the upper consciousness becomes for the first time acquainted with the experiences of the subconscious. This process of reversion by means of automatic writing may be cultivated and may become so persistent that the subconscious regions may keep up a correspondence with the upper consciousness and reveal its experiences by "messages" apparently coming from another world.

The phenomena of automatic speaking are rather rare, and are very much akin to those of automatic writing. The subconscious instead of projecting its experiences in the form of written words, does it by means of the spoken word. Here, too, as in the case of automatic writing, the process may become cultivated and the subconscious may carry on its intercommunications in a systematic form. The spoken messages, coming from the subconscious and revealing strange experiences first subconsciously acquired and then only made known in the way of the spoken word to the upper consciousness, appear inspired and awe-inspiring. They are "voices from another world."

The emergence of subconscious impressions, but in terms of another sense-organ, a condition somewhat similar to the phenomena of sensory automatism, such as those of crystal gazing and shell hearing, can also be effected by means of hypnosis. Anæsthesia to a definite class of impressions is produced in some parts of the body. These

impressions are then made to emerge as experiences coming from another sense-organ. The following experiments may be taken as typical of many others. A subject of mine suffering from alcoholic amnesia falls into a very deep state of hypnosis. When in this state his hand is made anæsthetic by post-hypnotic suggestions, it is then suggested to him that objects put into his anæsthetic hand will be seen by him on a screen. When he wakes up his hand is anæsthetic even to the most painful stimuli. The anæsthetic hand is then put behind a screen and another screen is kept in front of his eyes. When objects are put into the subject's anæsthetic hand, he has visual hallucinations of them. Thus, if half a dollar is put into his anæsthetic hand, no matter how lightly, he sees it on the screen first as a circle on a flat surface, then the visual hallucination is gathering more solidity and reality, more details are gradually emerging, and finally it begins to look like a solid half dollar. This rather bewilders the subject, as this coin is not like ordinary ones, for it does not feel like a solid object at all when the hand is passed over it, and he looks up in surprise, asking for the explanation of this curious phenomenon. The additional interest here is the extreme hyperæsthesia which the patient manifests in his apparently anæsthetic hand. No matter how small the object is and no matter how lightly it touches his hand, he still gives a minute description of it, when he draws with his free hand the outlines of the visual hallucination of the object as it appears to him on the screen before his eyes.

Instead of a visual hallucination of the tactile impressions, the subject may be made to have auditory hallucinations. When, on waking up, objects are put into the patient's anæsthetic hand, he begins to listen intently. He hears voices accusing him of keeping in his hand money or the particular object placed there by the experimenter. He calls the voices "foolish and lying," as he has no money about him, nor has he any other of the objects the voices

tell him of. Subconscious tactile impressions become here converted into auditory experiences.

Similarly, in an extremely interesting case which is at present under my investigation, the sensibility of the whole right side of the body presents striking phenomena. The patient feels neither touches nor pricks on the right side; even pain is completely gone, but when he looks into a glass of water while the anæsthetic hand is hidden from his sight by a screen, he has visual hallucinations of the correct numbers of touches, or of pricks given to the anæsthetic side, or of objects put into his anæsthetic hand; he has visual hallucinations of letters and words lightly written on the insensible hand. On the whole, he manifests extreme subconscious hyperæsthesia, but, strangely enough, in *symbolic* terms of another sense.[1]

[1] This process of conversion is intimately related to secondary sensory elements which play such an important rôle in the structure of the percept in general, and in that of hallucination in particular. See my article on "Hallucination," in *Psychological Review*, for January and March, 1904.

CHAPTER IX

THE PROCESS OF MENTAL RESURRECTION

The process of mental resurrection or of reverse procession of psychic states, from the periphery of inattentive consciousness to the focus of consciousness, can, in fact, be fully substantiated by observations in spontaneous somnambulism as well as by experiments in the hypnotic state. The following brief account of spontaneous somnambulism may serve as an illustration:

"I am a medical student in the University of Pennsylvania and take some interest in hypnotism, suggestion, and other psychical phenomena. A few days ago I became the fortunate possessor of your book, 'Psychology of Suggestion,' and after reading a few scattered pages, the happy idea came to me of consulting you on a subject which has troubled me for some time. I shall be as brief as possible. I am twenty-two years old; I am a somnambulist. They say that when I was a child I used to talk a little during my sleep, but that is about all. In 1893 I lived with a friend in New York, who had some electric batteries. He wanted me to take a shock, but I was somewhat timid and refused. One day he told me that if I did not take the shock he would give me one during my sleep. That night, I had been sleeping about two or three hours, I felt the wires in my feet and hands, and began to scream and kick all around, and finally I was awakened by my friend; all had been a dream. From that night on I very often had dreams, but always disagreeable ones, that they were killing me, or somebody was falling out of a window, etc. About eight months after that I went to New Orleans. It was winter and my room was very cold. I bought a stove,

and the first night I had it, after I went to bed, I noticed that it lighted the whole room, and the idea of a fire came to me; and after I had been sleeping about two hours, I began to dream that my whole room was on fire. I tried to get out through a window; I broke one of the shutters with my fist, but did not open it. Then I went for the door and went out into the hall, where I was met by several scared people. As soon as I saw them I said, 'Excuse me,' and ran back to my bed. Next day, before I had seen anybody, I knew all that happened. From that day up to the present time I dream almost every night, and, I could almost say, all the dreams are on fires, deaths, etc. Soon after that I went to room with a brother. Once he had to stay away overnight, and the lady of the house said: 'To-night you must not have a nightmare, because your brother is not here to take care of you.' That night, as usual, I had dreams, and was just going to open a door when what the lady had told me came to my mind, and I said to myself, 'She told me not to do it,' and very quietly went back to bed. Next day they told me what they had heard me doing, which proved to me that what I remembered of my dream was right. As a rule, I always remember what I do and say, though I don't always wake up after the dreams.''

All the phenomena reviewed by us, the phenomena of psycopathic anæsthesia and those of sensory and motor automatisms, such as crystal gazing, shell hearing, automatic writing and automatic speaking, can be reproduced artificially by hypnosis in our laboratories, provided the subject falls into a deep trance and takes post-hypnotic suggestions of motor and sensory character. It is highly probable, and experiments seem strongly to confirm the same view, that the different form of spontaneous automatic manifestations are of the same nature as hypnotic states. The subject first lapses into a subconscious state, from which he emerges manifesting sensory or motor au-

tomatism. The patient may fall into the subconscious state and pass through the whole of the experience while in that condition, and then on passing out of the state may remember everything that has taken place, but not suspect having lapsed into the subconscious state.

One of my cases, an active somnambulist, had similar experiences. "This morning," to quote from my notes, "I have been looking for a lost parcel. Suddenly I heard a voice telling me, 'You will find it on the shelf in there.' I was standing by a closet door, my eyes were open. I looked through the door and could see the thing clearly. I opened the door and took it. I was in a peculiar state before the voice spoke to me. My mind was a blank. I was as if unconscious of walking, as if doing things automatically." She had recently similar experiences. Thus, an instrument was displaced; a voice suddenly told her, "It is in the dark room," and there it was found.

The patient may fall into the subconscious state only momentarily, and take the suggestion of manifesting the automatic phenomena on emerging from the subconscious condition into the normal waking state. It appears, then, that the general law for the reverse procession of psychic content from the deeper state of the subconscious is the one condition of the merging, momentarily, of the central consciousness into the subconscious and then the emergence of the subconscious into the focus of the upper consciousness.

CHAPTER X

THE REAWAKENING

A MOMENT in passing from the centre of consciousness to the lower regions of the subconscious is usually effecting its course gradually through all degrees of intensity, ranging from maximum to minimum. In learning to play a violin, for instance, the movements of adjustments are at first effected with much strain and intensity of attention, but a long course of exercise, practice and repetitions slowly reduce the strain and intensity of attention until the act of playing and the necessary motor adjustments require the minimum of consciousness and the minimal amount of strain; in other words, the act becomes habitual, automatic. A habit is not formed suddenly. A series of repetitions are requisite, each repetition making the next one easier, thus reducing the strain and intensity of consciousness, until the minimum is reached. Of course, the minimum is relative for that particular moment consciousness. Some of them have a higher and some a lower minimum, although none of them may pass the absolute minimum. This largely depends on the complexity of the moment. The more complex the moment is, the higher the minimum, although they have all a tendency to reach ultimately the absolute limit. In other words, a more complex moment or aggregate of moments takes a larger time and a longer series of repetitions to reach the absolute minimum of consciousness. A simplification in the constitution of the moment makes the process of reduction more rapid, but the moment on its way to the minimum has nevertheless to pass through the different degrees of intensity. The passage through inter-

mediate stages is a necessary condition of the reduction of a functioning moment to a minimum of consciousness.

In the reverse process, however, in the process of a moment's rise from the subconscious to the conscious, intermediary stages are not always requisite. The moment, buried in the obscure regions of the subconscious, may be illuminated by the intense focal light of consciousness without passing through any intermediary stages. The direct or fading process is like the dying away of light; the reverse process is like the blazing up of a torch or like the explosion of gunpowder. That intermediary stages of consciousness are not requisite in the reverse process, that is, in the process of the moment's rising from the subconscious to the conscious, we may clearly see from such a commonplace example as the recalling of a once familiar name. We look and search for the name; we try all kinds of clews; we strain our attention in the search after the lost link, but of no avail. In fact, the more we try, the more we feel barred from the place where that lost link is to be found; we feel lost and wandering, and finally give up the whole affair in great despair and turn to something else. In the middle of our work, when we have fully forgotten all about the search, the name suddenly shoots up. No intermediary stage is passed, the whole state flares up at once. Solutions of difficult and complicated problems, discoveries and inventions, are known to occur in this way. Similarly in the phenomena of the various forms of sensory and motor automatisms, the sensory images or the motor reactions expressive of the rising psychic state gush up suddenly from the depth of the subconscious self.

In hypnosis, again, ideas and sensori-motor reactions, induced by post-hypnotic suggestion, may flash suddenly upon the mind of the subject. While in trance, the subject may be told a word, or a phrase, and suggested that he should be unable to remember it on awakening, but that when he will hear the word "now," coming from

the experimenter, he should be able to remember. On emerging from the trance state, the subject cannot remember that word or phrase, although it may just be, as some say, on the tip of his tongue; he may be in a condition similar to the one when searching after a familiar word, but which somehow constantly eludes his mental grasp. Generally, though, if the subject falls into deep hypnosis, his amnesia is complete and he cannot remember anything about the word, just as if it has been erased from his memory. No sooner, however, does the signal "now" reach him, than the forgotten word or phrase immediately and instantly flashes upon his mind.

This sudden, "impulsive" rise of moments from the subconscious into the light of the central consciousness can be even more clearly seen, more concretely realized, so to say, in the post-hypnotic suggestion of the motor character. During hypnosis it is suggested to the subject to do a certain act on perceiving a certain signal, but that he should not have the least memory of what he is going to do before the signal is given. On coming out from the hypnotic trance, if this be deep, he remembers nothing and may engage in something else; no sooner does he perceive the signal than he jumps up and carries out the suggested act with great impetuosity and lightning-like rapidity. The suggested psychomotor reaction, hidden subconsciously, appears in the light of consciousness as instantly as the discharge of the gun on the release of the trigger, or as the ring of the electric bell at the touch of the button.

If we turn to psychopathological cases, we once more meet with evidence of the same truth, we find instances the very essence of which consists in the fact that intermediary stages of the moment's transition from the subconscious to the conscious are completely wanting. The sudden onset of uncontrollable impulses and imperative ideas are notorious. Many an asylum can point to patients in its

wards, patients who have been quiet and listless for many months and even years, who rise suddenly, fell their attendant with one powerful blow and immediately after return to their previous listless state. The outburst is instantaneous. Suicidal and homicidal impulses, accompanying various forms of mental alienation, may have a sudden onset and vanish as abruptly as they came. Imperative ideas may also have the same flash-like appearance. The idea enters the mind suddenly, torments the patient by its insistency, and then somehow unaccountably vanishes. These impulses and ideas are like meteors, they appear lightning-like on the mind's horizon and then drop out of sight. Thus all the adduced facts now verge to one truth that reverse procession of a moment from the subconscious region to the light of the upper consciousness need not be through intermediary stages.

It may also be pointed out that intermediary stages are also absent when the subconscious moment which has emerged into the focus of the upper consciousness falls back again into the region whence it has come. In fact, we may say that this fit-like process is often even more characteristic of the returning of the moment into the subconscious than of its coming. We all have experienced the fact how some ideas, whether familiar or not, often flash across the mind, and the next moment disappear as mysteriously and as tracelessly as they came; they drop into the subconscious before the upper consciousness can seize on them, fixate them and have them assimilated. Hypnoidal states are of such a nature; they are sudden upheavals from the depth of the subconscious, but often disappear from consciousness as suddenly as they appear. The same we find in the case of uncontrollable impulses; they invade consciousness and get possession of it like an attack and then drop out of sight, sometimes not even leaving a trace or a vague memory.

In the states of hypnosis, such coming and going of sub-

conscious moments can be investigated more closely. During hypnosis, a story may be told to the subject and then a suggestion given that on awakening, when he perceives a signal, a sound, for instance, the story should occur to his mind, and that he should relate it, but that, immediately after, it should lapse from his consciousness. If the subject takes post-hypnotic suggestions, and can be put into that stage of hypnosis where amnesia can be induced, then the rise and fall of the subconscious moments are almost instantaneous, demonstrating the truth that the subconscious moment does not necessarily require to pass transitional stages in consciousness, whether forward or backward, whether it rises from the subconscious to the focus of consciousness or leaves the focus to sink into the subconscious.

This want of intermediary stages in the history of the rise and fall of the subconscious moment is not uniformly the case. The subconscious moment may rise slowly, pass through intermediary stages of intensity of consciousness, and then enter the focus and may again, in departing, fade away slowly, passing by degrees through all grades of intensity in its backward course. This is especially frequent in cases when the given moment rises spontaneously from a great depth of the subconscious. The moment seems to struggle on its way with many obstacles, hence its many failures to rise to full intensity. The same thing occurs in the different forms of sensory and motor automatism. The moment buried in the depths of the subconscious does not appear at once, fully developed, but struggles up as a series of failures, blunders and errors. This fading away of the moment into the subconscious and then the rise of it, sudden or gradual, back to the focus of consciousness, constitutes the cyclical movement of the moment consciousness.

CHAPTER XI

THE THRESHOLD OF MENTAL LIFE

In discussing the psychic minimum, it has been pointed out that there is a minimum of consciousness beyond which the moment cannot fall, if it is to work efficiently in its functions and adaptations to the conditions of the external environment. The arousal of such a psychic minimum depends on the general state of the functioning aggregate. Under certain conditions the state of the functioning aggregate may change so as to make it more difficult to arouse the requisite psychic minimum; on the other hand, the conditions may be of such a nature as to make the psychic minimum more easily aroused. Both sets of conditions indicate an abnormal state of the functioning aggregate.

Under the influence of certain toxic stimuli, such, for instance, as alcohol, cannabis and opium, the psychic minimum becomes easily aroused, associations in certain directions are awakened with great rapidity. This is clearly illustrated in the many forms of autotoxic and bacterial maladies accompanied by high temperature and consequent inducement of maniacal-like states, such, for instance, as are to be found in malaria, typhoid fever, and so on. Still clearer is the same condition revealed in the many states of mental alienation characterized by maniacal attacks, such as are to be found in the various forms of mania, simple mania, recurrent mania, alternating mania, mania furiosa and other states, in which the so-called maniacal outbreaks are manifested. In all these conditions the psychic minimum is readily aroused, the aggregate of moments has become more sensitive, and hence more responsive to stimuli coming from the external environment.

In other states the psychic minimum may be aroused with great difficulty. Such states may occur under the influence of depressive drugs, such, for instance, as the bromides, the later stages of the action of toxic and autotoxic agencies. The man in the stage of drunkenness is awakened with difficulty, the difficulty corresponding with the depth of the stage of intoxication. The patient in the later stages of high fever is in a state of stupor, a condition from which it is the harder to arouse him the more insidious and more intense the fever is. In idiopathic and the later stages of Jacksonian epilepsy, conditions which may be characterized as to their disorganized chaotic motor discharges as "motor manias," are often followed by states of stupor in which the arousal of the psychic minimum of the mental aggregate becomes nigh impossible.

In the different forms of melancholia, such as simple melancholia, the recurrent and alternating forms, and especially in the states termed stuporous melancholia, this condition of fall of the psychic minimum, with consequent difficulty of arousal of the mental aggregate, is clearly manifested. In melancholia the flow of associative psychomotor activity is greatly impeded, and mental synthesis is effected with difficulty. Moments require a considerable length of time to reach the fulness of their development and their association with other moments is one of a slow, difficult and painful process.

The fluctuations in the ease and difficulty of arousal of the psychic minimum of the moment aggregate are but approximately estimated in complex mental states. In the more elementary forms of moments they may be determined with more or less precision by the intensity and duration of stimulation required. When the arousal of the aggregate requires a stimulus of high intensity, then the psychic minimum is aroused with difficulty; on the other hand, when the mental aggregate requires for its arousal a stimulus of low intensity, then the psychic minimum is

aroused with ease. The difficulty of arousal of the mental aggregate means a fall and impoverishment of the psychic minimum, while the ease of arousal or of stimulation of the aggregate means a rise of the psychic minimum. Now, it seems clear that when the functions of the mental aggregate are effected with difficulty, there is a fall of the psychic minimum and a rise of the intensity of the stimulus, and when there is ease of inducing functioning activity in the aggregate, there is a rise of the psychic minimum and consequently a fall in the intensity of the stimulus. *The external stimulus and the psychic minimum stand in inverse relation to each other.*

If the activity of the functioning aggregate is regarded in relation to the stimulus, the two are found to be intimately related. A definite amount of stimulus is required before the aggregate can begin to function. A fall below that amount will fail to arouse the psychic minimum. Now that intensity of stimulus which is next to the one just sufficient to arouse the aggregate to functioning activity and give rise to the psychic minimum, may be termed the stimulus threshold, while the state lower than the minimum may be termed the moment threshold. In order that a moment or aggregate of moments should become in a condition to function, it must first overstep the psychic or moment threshold, attain the psychic minimum, while the external stimulus must overstep the stimulus threshold.

The relation in which the thresholds stand to the psychic minimum is not the same in which they are to each other. The psychic threshold and the stimulus threshold are in direct relation. If a higher stimulus is required to awaken the psychic minimum, that indicates that both the psychic and stimulus thresholds have been raised. The same condition, however, shows that the psychic minimum has not increased. The thresholds and the minimum are not directly related. A rise of the thresholds is a fall of the psychic minimum, while a fall of the thresholds is a rise of

psychic minimum. *The thresholds and the minimum are in inverse relation.*

In the simpler forms of sensory experience, the stimulus threshold is found by measurements for the different senses. Thus two parallel lines are for most people barely distinguishable when the distance between them subtends an angle of less than 60 seconds. In the sense of hearing, vibrations recurring between 30–35 per second are barely distinguishable. Below 16 vibrations per second no sensation of sound can be produced. Thresholds have been similarly determined for all other sensations. Thus the sense of touch, when tested by the æthesiometer, which, by the way, is an extremely unsatisfactory instrument, gives the average for the tip of the forefinger about 1.65 mm., on the back of the hand about 16.0 mm. Sensitivity to pain as tested by the algeometer varies from 10° to 15°. Sensitivity to smell varies with different substances; thus for smell of garlic sensitivity varies in detecting 1 part in 57,000 parts of water to 1 part in 44,000 parts of water; for oil of lemon from 1 to 280,000 to 1 in 116,000. Taste can detect the bitterness of quinine in a solution of 1 part quinine to about 400,000 to 450,000 of water; the sweetness of sugar can be detected in a solution of 1 part sugar to 200 of water; the taste of salt can be detected in a solution of 1 part salt to about 2,000 parts of water.

In the higher and more complex moments there is no possibility, for the present at least, to determine mathematically the amount of the stimulus threshold; but all the phenomena reviewed by us, as well as the analogy with the simpler moments leave no doubt that such a threshold and its correlative threshold of the moment consciousness play a very important part in the formation and interrelation of functioning complex moment aggregates.

The moment threshold rises with the activity of the moment. The longer the duration of the activity of the moment the greater is the relative increase of stimuli, both in num-

ber and intensity, requisite to prolong the activity at the same pitch. As our work on a subject progresses, unless new points of view unfold, serving as new stimulations, our interest wanes and our attention lags. In fixating a point we find that more and more effort is requisite to keep it before our eye, and that it finally disappears. Something new comes within the field of vision.

In the sphere of sensation we find the same rise of moment threshold. We are all acquainted with the fact that an additional candle or lamp, for instance, in a well-lighted room does not produce the same sensory effect as when brought into a more or less dark room. An electric light in the sun is scarcely perceptible. An additional ounce to a lifted pound does not feel as heavy as when raised by itself. A sound added to another sound or to a noise, sounds less loud as when appearing isolated, or when the same sound is breaking upon silence. The same relation holds true in the case of other senses. This same truth is still more clearly brought out in the fact that if we take a certain stimulus as a unit giving rise to a definite sensation, then as we progressively ascend and add more and more units of the same stimulus, the intensity of the sensation is far from rising proportionately. If we take, for instance, the weight of an ounce as our unit of stimulation, then the successive moments of unit-stimulations, that is, of ounces, will not give rise to as distinct and similar sensations as the initial stimulation. The second ounce will give a sensation fainter than the first one, and the third fainter than the second, and so on until a point is reached when the sensation of the additional ounce will not at all be appreciated, will dwindle away and almost reach the zero point. In the same way, if the pressure of a gramme is excited in the hand, successive increments of grammes will not in equal degree increase the sensory effect; the additional increments of grammes, though they are equal units of stimulation, give

rise to fainter and fainter sensations, until finally all sensory appreciation of the added unit fades away and disappears. If the hand is immersed in water, say at the freezing point, an addition of ten degrees will be perceptibly appreciated, while successive increments of ten degrees each will be felt less and less, and finally will not be noticed and become difficult to detect. In short, the moment threshold rises with its stimulation. To bring about a sensory response of an already stimulated sense-organ the intensity of the stimulus must be relatively increased. This is what constitutes Weber's law. The continuous progressive sensory response of a sense-organ requires a constant increase of stimulations which, within certain limits, bears a constant ratio to the total stimulus. This law is sometimes summed up by psychologists in the statement that "the increase of the stimulus necessary to produce an increase of the sensation bears a constant ratio to the total stimulus." Activity raises the moment threshold; it is the beginning of fatigue.

The rise of threshold after stimulation holds true in the whole domain of biological activity. If the gastrocnemius muscle of a frog, for instance, is stimulated by an electric current, the muscle, with each successive stimulation, responds less readily with a contraction, and this becomes more evident with the onset of fatigue. Pffefer, in a series of extremely interesting experiments, has shown that spermatozoids of ferns are attracted by malic acid, the progressive response of attraction of the cell requiring a constant increase of the degree of concentration of the acid, the increment of stimulations, as in the case of sensation, bearing, within certain limits, a constant ratio to the total stimulus. The threshold rises with each successive stimulation.

The rise of moment thresholds increases with intensity and duration of stimulation as we approach the state of fatigue. Through the influence of exhaustion, fatigue, or

the influence of toxic, autotoxic, emotional and other stimulations, the thresholds of certain moments have been raised so that ordinary or even maximal stimuli can no longer call out any response of the moments. Now, when such a rise of moment thresholds is present, the moments with raised thresholds can no longer enter into association with systems of moments with which they are usually associated, and the result is *dissociation,* giving rise to the great multitude of phenomena of functional psychosis with a subconscious background, the extent of which depends on the number of raised moment thresholds, on the extent of the dissociation effected.

When a moment or aggregate of moments begins to function it also radiates stimulations to other moments or aggregates of moments. All the aggregates which these radiated stimulations reach will not equally begin to function. It will depend largely on the state of the aggregate and its threshold. If the radiated stimuli be minimal, the many aggregates that have a high threshold will not be affected at all. Furthermore, many aggregates whose arousal could otherwise be easily effected by the given stimulus may temporarily be in a condition in which their thresholds have become raised and thus fall outside the sphere of activity of the functioning aggregate. On the other hand, aggregates that are usually inaccessible to those minimal stimuli may under certain conditions get into activity by similar stimuli through the previous lowering of the threshold of the total aggregate. Thus the aggregates set into activity by the functioning aggregate are conditioned by the rise and fall of their thresholds.

In case where the threshold of an aggregate is raised, the radiating minimal stimuli coming from a particular functioning aggregate may become efficient and reach the threshold, when another aggregate begins to function simultaneously. This holds true even in the case when the minimal stimuli coming from two different aggregates are

just below the threshold stimulus. Thus, under certain conditions, when visual stimuli are barely or not at all discernible, they can become intensified by re-enforcing them with auditory stimuli. This is commonly found in the fact of forgetfulness of a name or of some event and in the mode of its recovery. We try to find the name and seek to come to it in one line of thought, but of no avail; new lines are attempted, and finally the combined activity of the systems reach the lapsed aggregate whose threshold, through a lapse, the nature of which will be discussed afterward, has become temporarily raised.

We find the same truth further exemplified in the case of the infant under my observation. When with the nipple in his mouth the infant ceased nursing, the sucking movements could be induced again by stimulating some other sense-organ. The tactile pressure, temperature and taste stimuli coming from the nipple in the infant's mouth became insufficient to stimulate to activity the functioning aggregate of sucking movement on account of its raised threshold, and only additional stimulation could bring about a further functioning of the lapsed aggregate. This, of course, could also be effected by making the tactual and pressure stimuli coming from the nipple more intense, such, for instance, as shaking the nipple while the infant kept it in his mouth. This increase of intensity, however, mainly indicates that the stimuli were no longer effective, and an additional stimulus was requisite, a stimulus that might come either from the same aggregate or from a totally different aggregate.

In the many cases of post-hypnotic amnesia, we find the same truth further illustrated. In the deeper stages of hypnosis, from which the subject awakens with no remembrance of what had occurred during the state of hypnosis, the lapsed memories can still be brought into the upper consciousness by plying the subject with many questions. During the trance or during the intermediate stages, with

subsequent trance and suggested amnesia, the subject is made to perform a certain action, to light and extinguish the gas four times in succession, or to open and close the door four times. The subject is then awakened from his trance; he remembers nothing of what has taken place. If he is asked point-blank whether he remembers any incidents of his hypnotic state, he answers with an emphatic negative. If now the subject is asked whether he knows how much two times two are or his attention is incidentally directed to the gas or to the door, he at once becomes reflective, the subconscious memories are on the way to surge up, and a few further indirect questions, the number depending on the depth of hypnosis, finally bring about the lost memories. The threshold that has risen at the end of the trance is stepped over by the combined effect of the many stimulations coming from different directions and the subconsciously submerged moment or aggregate of moments surges up to the focus or nucleus of the upper consciousness.

Once a particular moment is stimulated in its appropriate way, it may go on developing, and usually does so by stimulating and setting into activity aggregates of moments associated with it, or may form new combinations of aggregates. The solution of a problem may present great difficulties, but once started on the appropriate line, the whole series of combinations goes on unfolding, stimulating other moments and aggregates and forming more and more complex combinations. Thus, Archimedes, as the story runs, while in the bath made discovery of the law of specific gravity. Newton under the apple-tree made the discovery of universal gravitation. Hughes was startled by the idea of symmetry in his discovery of the laws of crystallography. Goethe was led to his conception of metamorphosis and evolution by a skull on the plains of Italy. Darwin, by reading Malthus's economical treatise on population, was inspired to work out the great principles of the

struggle for existence and natural selection. Myers was led by the greater redness of blood in the blood-vessels of tropical patients to his grand conceptions of transformation and equivalence of energy. All these examples illustrate the fact that once a moment has been started, it goes on developing by stimulating other cognate moments and aggregates to functioning activity.

The same condition is also found in psychopathic borderland states, such as dreams. In dreams a peripheral stimulus gives rise to sensations that start the functioning of moments, which in their turn give rise to phantastic combinations of different aggregates. This phantastic combination of aggregates, giving rise to the functioning of otherwise unusual, or what may be termed abnormal constellations, is largely due to the fact of redistribution of thresholds in the dream state. The dream state is characterized by a rise of the thresholds of the moments and aggregates that have been functioning during the waking states, the thresholds of these aggregates having been raised through fatigue. In such a state as this moments that have their thresholds relatively or absolutely lowered through rest, in other words, moments or aggregates that are unusual during the waking state, will become aroused and begin to function, hence the phantasms of the world of dreams.

CHAPTER XII

THE THRESHOLD IN ABNORMAL MENTAL LIFE

In the interrelation of moment aggregates the moment threshold plays an important rôle, since its oscillations, its height and fall are at the basis of their associations and dissociations. Consciousness, consisting of complex aggregates of moments, passes in the course of degeneration through stages in the inverse order in which it has been built up. The complex aggregates of the higher type become dissolved, dissociated into less complex aggregates of moments of lower types. Constellations become disaggregated into clusters, clusters into communities, communities into systems, systems into groups, and groups may become decomposed into their constituent elements. The process of disaggregation may be slow or rapid, but its course is the same, it is from constellations to groups, from higher to lower types of moments.

With the process of dissolution going on in a mental aggregate we find modifications and redistributions of thresholds of all those moments with which the dissolving aggregate is directly or indirectly connected. A variation produced in one moment threshold tends to modify all the rest. An aggregate consists of many subordinate aggregates, and with its dissolution many moment thresholds become modified, affecting other thresholds of moments with which the constituents of the given aggregate are interrelated.

The slow heightening of the thresholds going hand in hand with the process of disaggregation may result in a

permanent rise of thresholds or may end in a paradoxical fall of thresholds. The components of the dissolving or already dissolved aggregate fall into the subconscious, the moment thresholds become lowered. While the thresholds of the moments, when stimulated through the components of the dissolving aggregate, become insurmountable, the components of the moments become more easily accessible through the lowering thresholds, if the attempt is made through the subconscious. We are thus met with the paradoxical state in which anæsthesias are also hyperæsthesias, and amnesias are at the same time hypermnesias. In fact we may assert that all psychopathic functional disturbances, that is, disturbances in which great rise of moment thresholds with consequent functional dissociation of moment aggregates have taken place, present this seemingly contradictory double aspect of loss and presence, of a hyperæsthetic anæsthesia and a hypermnesic amnesia. Redistribution with rise and fall of thresholds gives us a clew to the phenomena of functional psychosis.

The dissolution of a moment aggregate sets the components free, which become through subconscious intercommunication more easily accessible. In other words, the process of disaggregation, while raising the conscious moment thresholds, reveals by it the low subconscious thresholds, in the same way as distraction of the attention reveals the presence of an exaggerated reflex knee-jerk or as the removal of the cerebrum in a frog reveals the low thresholds of the spinal nervous aggregates. The subconscious is in fact a reflex consciousness, and its activity becomes fully revealed with the removal or dissolution of the upper strata of consciousness. As long as a group, system, community, cluster, forms a part of an aggregate it is more difficult to have it aroused to function than when it is dissociated, isolated from its other constituents. This relation may be formulated in the statement that the rise of threshold is directly proportional to the complexity of

the aggregate and inversely proportional to the simplicity of its constitution.

The simpler an aggregate is the lower are the moment thresholds. This truth is clearly manifested in the case of children. The child is easily aroused to action, slight stimuli divert its attention in different directions, and any idea and image crossing its mind has its motor manifestations. In savages, too, we meet with a similar condition of mind. Mental life is simple, and any passing mood and emotion have immediate motor manifestations. In the mentally defective, such as the imbecile, the cretin, the idiot, the systems that are more or less intact are easily aroused by slight stimuli; in other words, the aggregates have low thresholds. In psychopathic cases and in the insane we meet once more with similar conditions of mental aggregates, the moment thresholds fall and become lower with the process of degeneration.

The same thing is manifested in the state of belief induced in persons whose mental life is narrow and limited. Belief is the beginning of action. Now in children, savages, and mentally defective, belief is easily induced. This is clearly manifested in the case of suggestibility, which in fact is closely connected with the state of belief. It is notorious how children are extremely suggestible, so are savages, so are mentally defective persons of narrow thought and low education, and also the mentally unbalanced and insane. Anything, no matter how absurd, that falls in with their expectations is greedily accepted and immediately acted upon. Insane delusions in the different forms of melancholia and paranoia seem to present an exception to our statement, but as a matter of fact they, too, fall in line, considering the fact that any suggestion is readily accepted by the insane, if it only goes to strengthen the central delusion. Whatever can be assimilated by the functioning mental aggregate gains easy access, clearly demonstrating the fact that even where the

mental disease is of such a nature as to have moment thresholds raised, conditions found in the various forms of melancholias, still the chief organized functioning systems are set into activity by the slightest stimulations showing a low threshold of the dissociated active moments. All other conditions remaining the same, it may be asserted that the simpler in structure a moment becomes the lower falls its threshold. An aggregate in the state of disaggregation will have the thresholds of its *constituent* moments progressively *lowered,* the fall being directly proportional to the depth of the disaggregative process.

The continuous functioning of an aggregate brings about a process of disaggregation, the moment threshold of the given aggregate slowly rising until the reverse process of aggregation sets in, more or less restoring the previous state of the moment threshold. This is partly to be seen in the phenomena of fluctuation of the attention. If the attention is fixed on an object, say on a blot of ink, at first the interest flags, then there is a persistent tendency to look away from the blot, transfer the gaze to something else, and finally the whole blot vanishes from the field of attention and vision. New, persistent, though fluctuating efforts of attention are requisite to keep the object, the image, the idea before the focus of mental vision. The functioning of the particular mental aggregate is slowly bringing about a process of disaggregation, thereby raising the moment threshold, making further functioning more difficult, and finally having it arrested through the maximum rise of the moment threshold. This rise of threshold through function makes it possible for other aggregates to be aroused in the order of the heights of their thresholds; the lower the threshold the earlier is the aggregate stimulated, the higher the threshold the later is the aggregate set into activity.

Fluctuations of moment thresholds and formation of combinations of moment aggregates are of special impor-

tance in pathological states. Maniacal states of different forms of mental alienation present a similar distribution of thresholds. Maniacal states, wherever they occur, present a disintegration of the total interrelation of aggregates of moments as synthetized in the principal constellation, with a consequent lowering of the disintegrated constituent aggregates. Once such disorganization is induced, any stimulus may call forth an aggregate, which, through its radiating stimulations, may awaken all kinds of combinations and constellations in the aggregates the thresholds of which have been lowered. These aggregates, liberated from the control of the principal constellation, when stimulated, naturally give rise to chaotic, meaningless kaleidoscopic play of moments. The maniac is full of activity, his muscles are in constant play, and when the attack is at its height, he is continually gesticulating, running, dancing, shouting, singing and screaming. Reactions are intensified, reflexes are lively, verbal associations are greatly facilitated.

Disintegration of moment aggregates, redistribution and fall of thresholds are the cardinal traits that characterize maniacal states, wherever they are found, whether in the general somatic diseases, or in the conditions of mental alienation. Now in all states of such a nature, once a moment is started to activity, it goes on developing by ever forming new phantastic combinations. This process is very much similar in character to the activity of the moments in dream states. The difference between the two being that while the combinations in the dream states are largely due to a rise of moment thresholds, in the maniacal states the different combinations and connection of moments are mainly due to a *fall* of the moment thresholds.

Maniacal states, on account of the general fall of moment thresholds, are very much similar to the waking states. In both the waking and maniacal states the same condition of reduction of the moment thresholds is to be

found. Maniacal states are waking states with the only difference that they are abnormal, psychopathic waking states. The maniac is too much awake, responding with all his being to every slight and passing stimulus. He is in a state of intoxication, his mind and body are shaky and unstable, as if he were under the influence of strong liquors. The maniac seems to be possessed by powerful, active and malicious demons of the world of spirits.

The nature of maniacal states gives us also a clew as to how to counteract them, and if possible, when the process of degeneration has not advanced far, to bring about a synthesis of the moment aggregates and thus re-establish the controlling synthetic life activity of the disintegrated principal constellation, constituting the personal character of the particular individual as the result of his whole life history and development. To free the maniac from the baneful action of the world of demons, the influence of those harmful spirits must be removed. The patient's psychic life must be better defended and protected against the demoniacal possession by surrounding him with higher battlements and stronger fortifications. In other words, mania can be reduced by raising the moment threshold. This rise of the threshold may come on by itself and the maniacal states may even pass into states of melancholy.

States of melancholy, whether found in general somatic diseases or in conditions known as insanity, are characterized by a redistribution and rise of the thresholds of the moment aggregates. The more or less general rise of the thresholds makes it difficult for the usual combinations of moment aggregates to become formed. Combinations of incongruent moment aggregates, the thresholds of which are relatively lower, are alone in a condition to function. The field of consciousness becomes narrowed, the subconscious thresholds rise higher and higher. The course of mental activity, on account of the rise of the thresholds of the moment aggregates, is limited and confined to a narrow

field, in which only those moment aggregates can participate, the thresholds of which are relatively lower than the rest. The ensuing result is the formation of a delusion, which becomes the more pronounced and the more fixed the longer the general conditions of the rise of moment thresholds continue. The mind of the melancholic, especially in the chronic forms, becomes inactive, and turns in one narrow groove delved out by the delusion. The gradual growth of difficulty in effecting combinations of moment aggregates, due to the gradual rise of the moment thresholds, are accompanied by unpleasant moods and painful emotions so highly characteristic of melancholic states. In this respect of mood and emotion melancholic states differ radically and in fact are the very opposite of the maniacal states in which the moment thresholds are lowered and the formation of moment aggregates and their combinations are effected with greater ease, giving rise to agreeable moods and pleasant emotions.

Melancholic states may be said to be characterized by the cardinal traits of redistribution and rise of moment thresholds, by a narrowed activity concomitant with a painful emotional condition. The moment aggregate aroused by a stimulus will in the melancholic mind grow and develop and arouse to activity moment aggregates, the thresholds of which are low enough to be reached by the radiating stimulations coming from the primarily awakened moment aggregate. On account of the more or less general rise of moment thresholds, the process of synthesis has but a narrow selection. In the course of time, as the process of synthesis is more often repeated, definite and *stable* combinations of moment aggregates become formed. The longer the general states of the rise of moment thresholds last the more stable do these combinations of moment aggregates become, and finally they become so firmly organized as to form *stable* compounds; the melancholic states become chronic.

The rise of moment thresholds in melancholic states can be easily demonstrated by observation, and especially by experimentation. The mind of the melancholic patient is concentrated on his miserable condition and fixed on his principal delusion. Moments relating to his general state are alone active, while others are awakened with great difficulty. Reaction time is retarded in melancholia, and so is association time. The most simple questions must often be repeated a number of times before they are fully realized. The answers come only after a considerable time, and sometimes they are not forthcoming at all. Especially is this the case when questions relate to subjects lying outside the narrow field of the patient's delusions.

This rise of the moment thresholds and consequent narrowing of the field of consciousness is clearly seen in stuporous melancholia, but it is still more clearly demonstrated by experiments, even in the mild cases and early stages of melancholia. The method of association is valuable for testing the degree of narrowness of the field of consciousness, the height of the rise of the moment threshold, the strength and extent of the organization of the moment consciousness constituting the principal delusion. If the patient, for instance, is told that when a word is given to him, he should immediately tell a series of words that come into his mind and pronounce them in quick succession as rapidly as possible, it is found, when an interval of five or ten seconds is allowed for the experiment, that the patient cannot tell more than a word or two, and more often nothing at all, the mind being a perfect blank. The same holds true, if the patient is told that when a word will be pronounced he should tell any phrase that happens accidentally to come into his mind. The result is the same; the mind is a blank. The words and phrases given by the patient, when such are given at all, are found to relate to his principal delusion. The moment aggregates are organized round the principal moment, which forms the

kernel of the delusion, the whole combination forming a stable compound.

The great stability of the combination of moment aggregates is a very characteristic and also very important trait of melancholic states. In respect to stability, melancholic states contrast strongly with maniacal states, the psychic combinations of which are extremely unstable and fluctuating.

Melancholic states have a great similarity to sleeping states. The conditions in both are very much alike. The more or less general rise of the moment thresholds in melancholic states, with only a relative fall of thresholds in a more or less narrowed field of moment aggregates, brings the melancholic states very near to the dream consciousness of sleeping states; in fact, we may say that melancholia is a sleeping state, only it is an abnormal, or psychopathic sleeping state. The melancholic dreams with his eyes open. The dream of melancholia is unchangeable, fixed, oppressive; it is of the nature of a nightmare. The melancholic has on him the relentless grip of a horrible incubus. From the depressing sleeping states the melancholic may awake, he may then have *lucid* intervals, and with the further removal of "inhibition," with the fall of thresholds, may even pass into states of excitement, into states of maniacal exaltation.

This view of melancholic states from the stand-point of moment threshold is not purely theoretical; it is not entirely devoid of practical application. For it suggests a way of how to alleviate the condition of these unfortunates. As our investigations have shown that melancholic states consist in a rise of the moment thresholds, with a consequent formation of extremely limited combinations of moment aggregates, the only way to counteract this state of things is to endeavor by different means, whether by stimulants or by other agencies, to demolish the great heights of those thresholds. To counteract effectively melancholic

states and to bring about a dissolution of the stably organized delusional moment compounds, one must direct the battering-ram against the thresholds. In the treatment of melancholia, the psychiatrist must keep before his mind one, and only one, paramount principle: *reduce the thresholds.*

The following hospital notes of observations and experiments on a case carried out by Dr. A. Heger, under my direction, may be of interest to the reader:

"Admitted to Manhattan State Hospital, March 21, 1896; age, 19. Single. Seamstress. Hungary. Reads and writes. Diag., melancholia acuta.

"Patient noisy and screaming; does not seem to know what goes on about her. She is morose and sullen.

"Excitable on admission; troublesome; says, 'There is something the matter with me, my head aches; I think I am different from other people.' Has ill-defined delusions of persecution; is depressed and melancholy. Is excitable at times and noisy, if interfered with.

"Patient became despondent about a month ago. She complained of being sick and having no appetite; was very irritable and took a dislike to members of the family.

"March 30th.—Patient becoming quiet, speaks little; appears confused. One month later speaks only with members of family, and in June speaks to no one.

"From this time on patient remained in this condition, with but little change from time to time. She was tube-fed the greater part of the time, occasionally spoon-fed, and occasionally up and was helped about the ward; at no time would she make any voluntary movements; she never soiled herself. She was on thyroid treatment for several months and improved during this time. From this time on patient remained in a stuporous and cataleptic condition for two years.

"January 29, 1898.—Patient lies in stuporous condition. She is cataleptic, tube-fed; eyes are closed, with

some tremor of the lids. Various stimuli tried, such as tickling, disagreeable odors, electricity, and pain, but responses were absent or occasionally barely perceptible. Has never been seen to sleep, but lies in the same stuporous manner night and day. She assumes strange positions at times.

"She was given six ounces of spiritus frumenti in three doses by tube. Half an hour after first dose, patient began to cry and moan; later on, to sing and talk; spoke about her previous life, said her mother was poor and she had had to work very hard, but that Miss O'Donnell, the forewoman in the shop, had been very kind to her; said that two doctors had been in and had given her some brandy. She spoke about her sister not having been to see her for some time; called the nurse by her name, asking her to excuse her for giving so much trouble; that she knew she had her eyes closed, but she could not open them. She asked for a looking-glass, and said she would not know herself. Sang constantly in a drunken manner 'Nearer, my God, to Thee,' and on being asked, sang also 'Rosie O'Grady' (this song came out while she was in the hospital). Her manner was that of a sane and drunken person. She then became quiet, and when roused would make an effort to sing.

"January 30th.—In her usual condition, but seems more docile; will move hands on being urged; drinks milk; later eats rice, bread and milk from spoon; will partially open eyes if urged.

"No special treatment; patient quiet all day.

"Night nurse stated that patient apparently slept several hours. Patient up and in usual quiet condition when seen at 10 A.M. No drug given; was made to stand and left in order to see if she would seat herself. She swayed considerably, but remained in the same place; was gently directed to a chair, but in trying to sit, missed the chair and fell, her eyes being shut, and received a slight abrasion of the

chin. She seemed quite disturbed by this; her pulse rose to 100, and she appeared agitated. She was taken to a room and stimuli, such as snuff, blown in her nostrils, and snow on her neck tried, but without success. Ridicule was tried. She was told that she would be a success in a dime museum as an ossified woman, at which she smiled, and her arms were put in the position of a banjo player and a jig whistled which also amused her.

"Her abdomen was kneaded over the stomach; this was done suddenly and roused her. She showed signs of distress and attempted to leave the chair, opening her eyes and apparently starting to speak, but quickly regained her quiet, and after this the same process brought no response. So far the results undoubtedly show that if a stimulus, new and unexpected, is tried, a response is almost certain; but if the same thing is repeated, she seems prepared and will take no notice of it.

"In the afternoon she was taken to the patients' dance, in the hope that the change and the music might rouse her. She was in the care of a nurse, who was instructed to note her actions carefully and try and interest her in the proceedings. She opened her eyes on reaching the hall, and after apparently taking a look around, closed them and kept them closed; except for this, and for the fact that she opened them slightly at various times on the walk to the hall, she remained in her usual condition. Her physical condition has improved since the experiments, her tongue becoming clean and her breath less foul. In regard to sleeping, the nurse thinks that she was asleep, but is not sure, as she did not snore, but her breathing seemed heavier than normal.

"One nurse who had charge of her for some time states that she never slept, but lay 'in a kind of stupor' all the time.

"January 31st.—Patient received four ounces of spiritus frumenti. The effect was not very marked. She

talked and later read aloud five pages from a book given her, asking about the words she could not make out. She was not as excitable as usual.

"February 1st.—Received four ounces spiritus frumenti at 10.30 A.M. At 3 P.M. she was dressed (visitors being in the wards till this time), and she walked with some difficulty; would not respond to or notice any questions.

"February 2d.—Was dressed with the other patients in the morning. No spiritus frumenti. Sat about the ward during day; could not be made to talk, but ate her meals and allowed herself to be led about; walks well.

"February 3d.—Up and sitting in ward; takes no notice of efforts made to rouse her; patient received six ounces of spiritus frumenti in three doses. A little later opened eyes on being urged and kept them open for about half a minute at a time. She laughed, cried and sang; would speak a little when questioned; was intoxicated and incoherent.

"She had talked with the nurses and eaten her dinner with a good appetite. Later on she was taken into a separate room off the ward and an effort made to hold her attention as much as possible. She said she felt tired and that her stomach ached and she wanted to go to bed. She was apparently but slightly, if at all, under the effect of the whiskey. She had a tendency to fall back into her stuporous condition, and this was combated. She kept her eyes resolutely closed. She would remain quiet for about a minute and then suddenly make some remark, in nearly every case repeating some phrases overheard by her previously. She would stop in the middle of a sentence suddenly, as if she had lost her train of thought, and cry out in anger and clasp her head and say, 'Oh, don't make me talk,' or, 'I can't say anything,' and begin to scream. When quiet, it is difficult to rouse her or get her to speak, but while speaking, if a question is abruptly

put to her, she would answer, and sometimes would carry on a short conversation. Her answers were, as a rule, very sensible, and she would sometimes joke. Her memory is very good, and at times extraordinary. She spoke about her commitment, and said, with a laugh, that a doctor had asked her if she heard voices or saw visions. It was only by the most constant effort that her attention could be held or her interest excited, but during the period of two hours that she was questioned she improved in her attention. She laughed frequently and had fewer outbreaks of screaming and had an appearance of animation. She gradually recovered from the effect of the whiskey without lapsing into stupor, and continued to talk while quite sober. Later on she returned to the ward and ate supper, and asked to be taken into the room, the first time she had made such a request. In the evening she was in her usual stuporous condition.''

The principal point in this method of work is the lowering of moment thresholds, no matter by what means such lowering is effected. The best way is to use various stimuli at different intervals, so that the patient should not become habituated to them, which may on this account lose their effect. The patient in the intervals should be stimulated to greater activity and exertion.

When complex moment thresholds become lowered, moments submerged into the subconscious step over the threshold and enter consciousness. Such a fall of the moment threshold is often found under the influence of intoxicating drugs. Slight stimuli of minimal intensity set into active function numerous moment aggregates endlessly varying in their combinations, intensity and vividness. Thus under the influence of opium or of hashish long-forgotten incidents arise with such intensity and vividness that one cannot help recognizing them.

The rise and fall of moment thresholds stand out clearly and definitely in cases of sensory derangement where hypo-

æsthesia or hyperæsthesia is present. In the case of hypoæsthesia, the threshold is raised, while in hyperæsthesia the threshold is lowered. In hypoæsthesia, to pass the threshold and reach the psychic minimum the stimulus must either be intensified or a series of stimulations must become summated before a moment aggregate, with its psychic minimum, is aroused to activity. Thus in a case under my observation and experimentation, a case suffering from tactual anæsthesia, with hypoæsthesia of pain, pressure, temperature and kinæsthetic sensations, a stimulus to reach consciousness and be felt had either to be very intense or a series of stimuli had to be given in quick succession. When a series of intense stimuli were given in quick succession and thus became summated, overstepping the raised threshold, the many stimulations were felt as one. If, for instance, a strong prick was given, the patient felt nothing at all, but if the pricks came one after another in quick succession, then the patient declared that pain was felt as if *a* prick was given. If asked how many pricks, the patient either answered, "I do not know," or declared them to be "one."

The same holds true in the case of the other sensory stimulations or series of quite intense pressure, pain or temperature stimuli, they are felt as one, their multiplicity not being discriminated, their total amount being just sufficient to give rise to one impression. This impression is often so vague that it is often hard, if not impossible, for the patient to localize the stimulated place or point out the direction where a series of pain, pressure or temperature spots have been excited in quick succession, forming a line having a certain direction. The patient, while experiencing the stimulation, is often even unable to tell to which hand the stimulus was applied, whether to the right or to the left hand. The same holds true in the case of the kinæsthetic sensations. When I get hold of the patient's hand and move it slowly, the hand can be changed in position

almost through an angle of 90°, and the patient, when blindfolded, is not in the least aware of the change. The patient thinks that the hand is in the same place and in the same position. When a series of quick, sharp movements are impressed on the hand, the patient feels the movement, but does not know in which hand to localize the movement, nor is she cognizant of its direction. It is only an intense wrench of the hand, arm or forearm that can raise in the patient a full consciousness of the movement impressed both as to locality and direction. If the intensity of the stimulation is decreased, but the extensity increased, the same result follows; thus when the stimulated area is increased, the patient is able to feel a stimulus of less intensity. This holds true of all sensations with the exception of touch. In other words, the raised moment thresholds can be overstepped either by a higher intensity or a greater extensity of stimulations.

The following case of aphasia brought to me by Dr. Winter, Instructor in Neurology at the New York Medical College, is of interest from this stand-point.

Annie Bell, age 30, Irish. Came to my laboratory May 20, 1900. Four years ago, when patient was 26, she had a sudden apoplectic attack while on the street. She was taken home in a state of unconsciousness. Since that time her right side is affected. There is a marked tremor and paresis in the right hand and leg. There is a history of alcoholism; syphilis is denied by patient. Patient has always been well up to the time of the attack; family history is negative.

Reflexes are exaggerated; pupillary reaction and binocular accommodation are normal. Patient complains of severe headaches. There is a hypoæsthesia of all the forms of sensations on the affected side and also that of kinæsthesia. With her eyes closed, patient is not able to reproduce well with her left hand the different positions produced by slow and very light rotations of the right hand.

Dynamometric pressure for left hand is 70; for right hand, 55. The movements of the tongue are normal.

Patient's mental life is greatly affected; questions must be repeated before she answers them. There is considerable difficulty in forming the answer, which is often incorrect. Although patient was to school, and before her attack she could write quite well, after the attack, all her school knowledge, and along with it her ability of writing, was completely gone. She could read neither written nor printed letters.

In the examination of the patient, she gave her name correctly, but when asked how old she was, she first said 40, and then corrected to 30. When asked what year it was, she could not answer. Is it 1900? Patient answered, "I don't know." When a paper with the date of 1900 was shown to her, she did not know what it was. When her address was asked, she said, "284 Bleecker Street" (right number 285). When asked, "Is it 275?" she said, "Yes."

Q. Do you know the name of the city? A. New York.

Q. What country do you live in? No answer.

Q. What is the name of this country? No answer.

Q. Is it England? A. No.

Q. Is it Ireland? A. No.

Q. What is the name of this country? No answer.

Q. Is it the United States? A. Yes.

Q. Is it the Northern or Southern part in which you live? A. Northern.

Q. What is the name of your husband? A. Tom Bell (correct).

Q. How many children have you? A. Eight—no, two (two is correct); one living and one dead.

Q. What is your husband's occupation? A. Driver.

Q. How much does he make a week? A. Twelve dollars.

Q. What was your occupation before marriage? A. Laundry.

Q. How old is your child? A. Eight years.

The more familiar associations, having a low threshold, could thus be easily awakened.

Patient is unable to talk in connected sentences and speaks in monosyllables. The following is an example of her speech:

"My sister, goin' away, three months, in the country, nice time, Sprengt, Sherring Strings. Got a fellow up there. Write to him. Nice. How once upon time. Mother-in-law broke it up. All for drink. And five children. One is dead and other living.

"An awful headache once in a while, top of me. Tchaking much." (Patient has great difficulty to pronounce the word "shaking." Lips twitched. She tried again and again, and failed.) "If I ever get better. Leg too ever get better?" Patient, however, repeats single words well; mispronounces only when she has to repeat a whole phrase.

Her mother told us that the patient could not name objects correctly, but that she does it quite well now. Different objects were shown to the patient, and she named them correctly, though there was some difficulty noticed in the process of recollection of the names.

She could recognize pictures, but named them with difficulty. The more familiar pictures took a shorter time. She could identify, however, the represented object when the name was given to her.

During the experiments of naming objects which required her utmost attention, the tremor in her hands completely ceased.

The patient was asked whether she could picture to herself a dog or a cat. She answered, "Yes." When asked if she could picture to herself her husband, she likewise answered affirmatively. It is, however, doubtful whether the patient really understood the questions.

Colors were shown to the patient. She recognized them and sorted them well, with the exception of yellow. She

does not know the name of color yellow, but remembers the names of colors. She does not recognize the shades of yellow as yellow even when told.

With her eyes closed, a lemon was put into her hand, and when asked what it was, she said, "A ball."

Q. Is it hard or soft? A. Soft.

Told to smell and then asked what the object was, patient said it was a lemon. With her eyes closed, she could by sense of touch and pressure and kinæsthesis give the correct name of familiar objects, such as scissors.

Q. Can you spell cat? A. C A T.

Patient was not quite sure of the spelling.

Q. Can you spell pretty? A. I can't.

Q. Is it K, L, M? A. I don't know.

Patient knows about half of the letters of the alphabet if the letters are named to her; others she cannot identify even when named; they seemed to have been entirely gone from her memory. She can distinguish figures from letters, although she cannot name them and does not know them.

Patient can count up to twenty, and if aided, up to thirty-five. She also knows that after forty comes fifty, and so on up to one hundred. Beyond one hundred she cannot go. One hundred and one is an unknown, if not an unknowable quantity to her. She traces letters quite well, although she reproduces them imperfectly a minute after.

Q. How much is two and three? A. Five.

Q. Three and one? A. Four.

Q. Six and one? A. Seven.

Q. One and six? A. Sixteen.

Q. Two and six? Patient did not know.

When, however, vertical strokes are made in groups of five and three, she counts the marks, adds them up correctly, and then she knows how much five and three are in the abstract. This, however, is very slow. Sometimes, after counting the strokes, she still fails to give the correct answer, when the numbers are given in the abstract. The

threshold is thus higher for the abstract than for the concrete and the sensory; the threshold can be passed by the help of sensory experience, such as visual, tactual, and so on.

She was then asked the following questions:

Q. What is more, six or five? A. Six.

Q. Eighteen or seventy-five? A. Don't know.

Q. Eighteen or twenty? A. Twenty.

Q. Twenty or seventy-five? A. Don't know.

When, however, more complex figures were asked in the concrete form of dollars, she gave correct answers.

Q. What is more, 43 dollars or 39 dollars? A. Forty-three dollars.

Q. Fifteen dollars or 76 dollars? A. Seventy-six dollars.

Q. Eighteen dollars or 75 dollars? A. Seventy-five dollars.

With her eyes closed a watch was held close to her ear and she was asked to tell what it was. She said, "Tick, tick, tick."

Q. What is it? She could not tell the name.

Q. Is it a wagon? No reply.

Q. Is it a watch? A. Yes, yes.

She was told to open her eyes, and she was asked to tell the time. Patient gave the correct time with each change of the movement of the hands of the watch.

As patient knew some of the letters, syllables were made of them and she was asked to pronounce them. She could not do it. Thus she knew letter B and letter A, but when asked to read the composite syllable BA, she could not do it. The same was in the case of LO and OF. When shown syllable OF and asked if it would read as "of," she did not know.

The following series of figures were given to her in order to test her memory:

23, 47, 89, 76, 52.

The series was shown to her and she was told the value of each number. She was then asked what the first one was. She could not tell. After telling her five times, she was asked what the first number was; she still could not tell. Patient is conscious of her defective memory and says, "Right away forget them." She was then told again and once more asked, "What is the first one?" She then gave the correct answer, twenty-three.

Q. What is the second? A. Don't know.

Q. What is the third? A. Don't know.

Q. What is the second? A. Don't know.

Q. Is it fifty? A. No.

Q. Is it sixty? A. No.

Q. Is it forty? A. Yes—no.

Q. Is it forty-nine? Is it forty-three? A. Yes.

Q. What is the first? A. Twenty-seven.

The interesting point is that she learned readily the individual figures, but she could not learn their combination, just as in reading she learned some of the letters of the alphabet, but she could not learn the syllables, that is, the combination of the sounds even when the individual values of the sounds were known to her.

To test patient's memory, and especially her power of representation, the following questions were put to her:

Q. How many sides has a square? Patient could not answer.

Q. How many sides has a box? A. Four.

Q. Has a box a top and a bottom? A. Yes.

Q. How many sides has a box? A. Four.

Q. How many sides has a house? A. The front.

Q. How many more sides has a house? Patient seems puzzled.

Q. How many legs has a chair? A. Four.

Q. How many legs has a table? A. Four.

These questions were put to the patient with her eyes shut.

Q. How many toes have you? A. Five.

Q. How many on both feet? A. Ten.

Q. How many toes and fingers have you? A. Twenty.

Q. How much is ten and ten? A. Twenty. (The answer is given very slowly.) She could not have given this correct reply if the question had been put in its pure abstract form.

Q. How much is five and five and five and five? A. Twenty (very slowly).

Q. How many legs has a horse? A. Four.

Horses are quite familiar to the patient since her attack, as patient lives in a large city and in a place where the traffic is very great, and besides, her husband is a driver. When, however, the less familiar question was put to her: How many legs has a bird? patient was puzzled, then said, "Three."

Q. Has a bird got three legs? A. I don't know.

Instead of the general form the question was put in a more particular form:

Q. How many legs has a chicken? A. Four.

Q. Has a chicken four legs? (Patient embarrassed.) A. I don't know; I don't understand you.

Q. How many legs has a cat? (familiar). A. Four.

Q. How many legs has a chicken? A. Don't know.

Q. Has a chicken teeth? A. No.

Q. What do you use in drinking tea? A. Cup.

Q. What more? A. Saucer.

Q. What more? Nothing.

Q. Don't you make it sweet? A. Yes; sugar.

Q. Do you stir it? A. Yes; spoon.

Q. Is pepper sweet? A. No.

Q. Is it salty? A. No.

Q. What is the taste of pepper? A. I don't know.

Q. Would it taste hot? A. Yes.

Q. Would it taste bitter? A. Yes.

Q. What is the taste of vinegar? A. Sour.

Q. What is the color of silver? A. Don't know; don't understand.

Q. Is silver blue? A. No.

Q. Is it red? A. No.

Q. What is its color? A. Don't know.

A more familiar color of a very familiar object was then asked:

Q. What is the color of grass? A. Green.

Q. What is the color of gold? Patient kept on repeating the word "gold" many times, as if one trying hard to recall but did not succeed.

Q. Is gold blue? A. No.

Q. Is it green? A. No.

Q. Is it yellow? A. Yes; oh, yes!

In many nervous diseases where the advanced stages are characterized by complete loss of the muscular sense and of kinæsthesis, the early stages present phenomena of rise of threshold. This can be verified in the initiatory stages of tabes. Thus in an interesting case that came under my observation, the patient for about the course of two years revealed no other symptoms, except severe attacks of periodic nausea and vomiting, and on an examination revealed no sensori-motor derangements indicative of any lesion as of the active progress of a pathological process. A closer examination, however, by the method of minimal impressions revealed a great rise of the threshold for kinæsthesis in the toes. The case was afterward regarded to be one of tabes. I may add, by the way, that the method of minimal impressions in relation to the rise of thresholds can be used in many forms of nervous diseases from a purely practical diagnostic stand-point, the method being all the more valuable in the initiatory stages of the malady.

In hypnosis and trance states the moment thresholds are often found reduced. The fall of the thresholds in these subconscious states gives rise to an extreme condi-

tion of hyperæsthesia. This hyperæsthesia is by no means of an organic character, but purely of a functional psychopathic nature. In other words, the hypnotic hyperæsthesia is not at all due to a modification within the peripheral sense-organs, but simply and solely to a lowering of the moment thresholds of the more complex and higher constellations of moment aggregates. Stimuli of minimal intensity, which in the waking state cannot overstep the higher thresholds of the higher constellations of moment aggregates, constituting the personal self-consciousness of the individual, are enabled to do so when the trance state is induced and the moment thresholds are lowered. The impressions are subconsciously present, but can only enter consciousness or self-consciousness through the medium of trance states. To this effect I have carried out a series of experiments, varying them in all possible ways, but with the same result,—apparently unperceived stimuli during the waking state are still present subconsciously and become manifested with the induction of subconscious states. The hypnotic subject, when in a very deep trance, is often highly hyperæsthetic, his discrimination becoming very acute. The subject's eye can perceive a difference, when no other eye can see any; his ear can detect the slightest difference in apparently similar sounds; the hand can recognize and identify objects in all their details by the slightest and most superficial touch. This fact of hyperæsthesia in trance can be verified by anyone who has carried on extensive experiments in hypnosis and has had subjects who could be submerged into the deeper subconscious regions. In other words, moment thresholds are lowered in hypnosis, minimal and subminimal stimulations give rise to psychic processes which become assimilated in the moment aggregate.

Furthermore, experiences received subconsciously come to the surface with the induction of hypnosis and of trance states. The thresholds having become lowered, subcon-

scious experiences are enabled to overstep them and become assimilated in the functioning moment aggregate. This holds true not only of subconsciously received experiences, but also of such experiences that have been so deeply submerged into the subconscious as to be beyond the reach of self-consciousness. In the deepest stages of hypnosis, as well as in similar trance states induced by other means, memories are often revived that have fallen altogether out of the grasp of the individual. In short, *subconscious moment aggregates manifested in hypnosis and trance states have lower thresholds.*

CHAPTER XIII

MEMORY LAPSES AND THE SUBCONSCIOUS

Disaggregation of moments becomes clearly manifested in the phenomena of amnesia. When a moment becomes dissociated from the principal functioning constellation, the life of the moment is degraded, falling into the subconscious region of mental life. If the content of the moment has not become completely disintegrated, but has only fallen to lower and lower types, it may by different methods be evoked from these obscure regions of mental activity.

Among these different methods those of hypnotization and of hypnoidization are of the utmost importance. The different methods of hypnotization have been so often discussed that there is no need to describe them here. The method of hypnoidization, however, is not so well known, and a short description given in a former work of mine will answer the purpose.[1]

The difference between the method of hypnoidization and that of hypnotization is the manifestation of the submerged moment. In hypnotization, the submerging moment stands revealed as a whole; in hypnoidization, the moment appears in parts and synthesis is effected in the functioning moment consciousness. Hypnotization has the great drawback that the patient is not always willing to be put into hypnosis, nor is it easy with all cases to reach that deep level of subconsciousness to which the dissociated moment has fallen. Hypnoidization, on the other hand, though having the drawback of breaking up the moment's content and laying bare fragments of it, has the great

[1] See Sidis, Psychology of Suggestion.

advantage of dispensing with the state of hypnosis; the method can be used while the patient is in his waking state.

Hypnoidization, in fact, often proves to be superior and far more effective than hypnosis. The synthesis effected through the intermediary states which are closely allied to the hypnoidal, proves to be more stable than that brought about through hypnotization. In the case of D. F., the dissociated states synthetized in hypnosis became once more disaggregated in the waking state and fell again into the subconscious regions and could only attain permanent stability when the synthesis was effected through those intermediary states, of which the hypnoidal states constitute one variety. The H. case, one of double consciousness; the M. case, which would be characterized as "psychic epilepsy"; the P. case, one of alcoholic amnesia, and many other minor cases, have been worked far more successfully through intermediary states, and especially through hypnoidal states.[1]

As an illustration of the dissolution of moments and the discovery of their presence in the lower levels of consciousness, or in the subconsciousness, the following case may be cited:

In the "Arch. de Neurol." for 1894, J. Seglas and Bonnus report an interesting case of amnesia which may be considered as typical and of which we give here a brief account:

The patient is 19 years old. In her sixteenth year she had nervous attacks. On the 5th of June, 1894, she was brought to Salpêtrière for great disturbances of memory. Examination revealed the following symptoms: Total anæsthesia of the skin and of the mucous membranes, limitation of the field of vision, disturbances of the color-sense. As to the disturbances of memory, the patient lost all reminiscences for all that she had lived through since the 26th of May, 1894. Patient remembers, however, that she

[1] See Sidis, Psychopathological Researches.

has had a violent emotion on this day; a gendarme came to her and served her official summons. From this point of time she remembers nothing at all. She lost all capacity for synthetizing new experiences in her narrowed moment of self-consciousness. Now, when the patient's eyes and ears were closed, she rapidly fell into a sleep-like state; it was not the normal sleep; it was rather a somnambulic state. In this state the lost memories and sensibilities returned. This we should expect from the stand-point of our theory of dissociation; the lost sensibility and experiences were present to the subconscious moments.

To take another example: In one of my cases, in that of R. C., the dissociated memories were brought out in hypnoidal states. The patient, otherwise a strong and healthy man, but extremely sensitive and nervous, used to fall into subconscious states preceded by what may be termed a sensory aura, this being uniformly a sensation of green. The subconscious state lasted from about half an hour to an hour and more, the patient often becoming violent, having hallucinations, making attempts to assault his sister-in-law in the presence of his wife and bystanders; fighting people, beating cruelly his best friends, and even attempting in a fit of violent anger to throw out through the window his own little baby, whom in his normal state he greatly loves and adores. When the subconscious state works itself off and gradually approaches its termination, the patient becomes exhausted and falls into a deep sleep, which sometimes lasts as long as fifteen hours or more. On emerging from this sleep, the patient remembers nothing of what had taken place during the subconscious state. The memories, however, were not lost; they were present subconsciously and were brought to light by the induction of hypnoidal states. A full history of the patient's actions and doings during some of his subconscious states was given by his relatives, who watched him closely. This history helped to verify the patient's own account given by him in his hyp-

noidal states. Sometimes a cue had to be given to the patient and then memories emerged slowly in bits and fragments, finally becoming synthetized, the patient's consciousness of the sequence of events being reconstructed and fully recollected. Once the dissociated states became synthetized in the patient's principal moment consciousness, they were reduced both in content and intensity of activity. The interest lies in the fact that disaggregation of moments gives rise to certain forms of what may be called psychopathic amnesia and may be found present in the subconscious, from which, under certain conditions, they may emerge and become synthetized in the principal moment consciousness.

Another case of mine, that of F., is very similar to that of R. C., the chief difference being the absence of aura, of violence, and of prolonged sleep after the emergence from the subconscious states. The subconscious state does not set in suddenly, develops gradually, is not violent, and lasts for a few days. On the return to the normal state the memories of the subconscious state are found to be missing and are apparently obliterated. This obliteration, however, is more apparent than real. The memories could be recalled in hypnoidal states. Experiences passed through during states of disaggregation are present only in the synthesis of the simpler systems. With the reinstatement, therefore, of the higher or more complex disaggregated systems, events and actions passed through during the state of disaggregation will not belong to the experiences constituting the content of the higher moment consciousness. *The higher moments, on account of their absence during the state of disaggregation, have no memory for the experiences of lower moments. A dissociated moment consciousness can remember only its own experiences.*

When the higher moment of self-consciousness becomes disaggregated and a lower type of moment takes its place, a

break occurs between the two moments, the experience of the lower moment is not transmitted to the higher moment. The higher moment lacks the experience passed through by the lower moment, and the result is amnesia. This is well illustrated by the amnesic states that often accompany intense emotional states, great exhaustion, toxic conditions, epileptic attacks and intense stimulations in general.

CHAPTER XIV

HYPNOIDIC STATES OR RESURRECTED LIVES

Hypnoidic states consist in the recurrence of outlived phases of the patient's personal life. The hypnoidic state, when it occurs, forms a complete and distinct individuality, the upper consciousness of the patient being removed. Memories, which the upper self is unable to recall and which seem to be altogether effaced, suddenly arise to the surface of consciousness as the upper layers of mental activity are removed. The hypnoidic state differs from hypnosis. In hypnosis, the removal of the waking consciousness is followed by a state of high reflex suggestibility, which is characteristic of the indefinite nature of the secondary self. In the hypnoidic state, such suggestibility is absent, because another quasi-personality emerges, having a more or less definite character, a personality which is often not amenable to direct suggestion. By means of indirect suggestion, however, it is possible to remove this personality and replace it by another, which may again be treated in the same way.

In hypnoidic states, the sense-organs are closed to the impressions of external stimuli; the patient does not perceive what goes on about him; his hallucinatory or "visionary" environment relates to the past. If by chance any impressions reach the patient, they are worked into his present "visionary" experience. The patient hears nothing of the conversation going on about him, and does not reply when spoken to on subjects not relating to his resurrected life experiences. He only replies to questions

relating to the experiences through which he is at that time passing. His replies are to the thoughts awakened within the present active subconscious moment, or in very rare cases he seems to converse with some persons appearing to him as present in the hypnoidic state. On awakening from the hypnoidic state, the patient clearly recalls the events of his "vision," but cannot recognize them as experiences of his past life. He does not remember, however, any of the answers which he was induced to give. It is only what occurred spontaneously in his visions and which was a faithful reproduction of his past experiences that is remembered with even an extraordinary distinctness.

The hypnoidic personality is of an unstable nature, and left to itself, tends to disappear and fall back within the depths of the subconscious regions. The hypnoidic personality, however, is in closer contact with subconscious life than is the waking self. The former possesses experiences and memories of which the upper self is quite ignorant.

We find here a more or less systematized association of clusters and constellations of moment consciousness, dissociated from the main stream of personal life and not synthetized within the principal moment of self-consciousness. These dissociated moments emerge to the surface of mental life at regular or irregular intervals. In other words, clusters and constellations that have been split off from the main aggregation or rather organization of collectively functioning clusters and constellations of moments, under favorable circumstances, especially when the principal organization of constellations is "inhibited," emerge to the light of day and become active, their activity being manifested in the phenomena of hypnoidic states. The well-known case of Dr. Mesnet's may be taken as a good illustration. I quote from Dr. Mesnet's account:

"F——, 27 years of age, sergeant in the army of Africa, received, in one of the battles preceding Sedan, a

bullet wound, which fractured the left parietal bone. The ball, fired obliquely, made a wound eight or ten centimetres in length, parallel to and about two centimetres below the temporal suture. At the time he received the wound, F—— had still enough power to overturn with a bayonet thrust the Prussian soldier who attacked him, but almost at that instant his right arm became paralyzed, and he was obliged to abandon his weapon and make his escape from the conflagration and the storm of balls which rained down on the village of Bazeilles. He was able to proceed about two hundred metres, when his right leg also became paralyzed, and he lost all consciousness. It was only after the lapse of three weeks that he recovered his senses, when he found himself in Mayence, whither he had been transported by a Prussian ambulance.

"At this period the right hemiplegia was complete, the loss of motion absolute. Six months later he was taken to France, and was an inmate of various military hospitals in Paris, the paralysis continuing about a year. Nevertheless, he recovered.

"He suffered, however, from attacks of abnormal states, during which the general sensibility was completely extinguished. The muscular sensibility is preserved. Hearing, smell and taste are sealed against any impressions from without. Sight yields only vague impressions. The sense of touch persists, and seems to acquire delicacy and an exaggerated impressibility.

"The activity of F—— is nearly the same during his attack as in his normal condition, with the exception that motion is less rapid; he moves about with open eyes and a fixed gaze; if he is directed against an obstruction, he strikes against it slightly and turns to one side; whether it may be a tree, a chair, a bench, a man, or a woman, it is nothing more to him than an obstacle, the character of which he does not recognize. He appears like a pigeon whose cerebral cortex has been removed; and still he lives

in a world of his own. Thus he was promenading in the garden, under a grove of trees, when someone put back into his hand the cane which he had let fall a few moments previously. He felt for it, turned his hand several times around the curved handle of the cane, became attentive, seemed to listen, and suddenly cried out, 'Henri!' then, 'There they are! There are at least twenty of them to the two of us! We shall get the better of them!' and then, carrying his hand behind his back as if to get a cartridge, he went through the movements of loading his musket, crouched at full length in the grass, concealing his head behind a tree, in the posture of a sharpshooter, and following with his gun at his shoulder all the movements of the enemy.

"On another occasion he came across the handle of a drawer; opening it, he took up a pen; he began to ransack the drawer, taking out and placing on the table several sheets of paper, and also an inkstand. He then sat down and commenced a letter, in which he recommended himself to his commanding officer for his good conduct and bravery, and made an application for the military medal. As he kept on writing, the page was withdrawn, but he remained disconcerted and terminated on the third sheet the line commenced on the preceding, continuing from the exact point where his pen was placed. We took away successively, and in the same manner, the third sheet, then the fourth, and arrived at the fifth; he signed his name at the bottom of the page, when everything that he had written had disappeared with the preceding sheets. We saw him then turn his eyes toward the top of this blank page, read over all that he had written, giving a movement of the lips to each word; while at various times he made with his pen, in different places on this blank page, here a comma, there an *e*, at another place a *t*, following out carefully the orthography of each word and correcting them to the best of his ability; each one of these corrections corresponding to an incomplete word,

which we found at the same height and the same distance on the sheets of which we ourselves had possession.

"On completing the letter he went into the garden, where he took from his pocket a book of cigarette paper, opened it, and detached a leaf from it; then took out his tobacco and rolled a cigarette with the dexterity of one who is accustomed to this proceeding. He searched for his match-box, lighted his cigarette with a match, which, falling still burning upon the ground, he extinguished by placing his foot upon it.

"This first cigarette terminated, he prepared to smoke another, when we stepped up and began to interpose obstacles. He held a fresh sheet of paper in his hand, ready to receive the tobacco, and he searched vainly in his pocket for his tobacco, as we had filched it. He searched for it in another pocket, going through all his clothes until he came back to look for it in the first pocket, when his face expressed surprise. I offered him his tobacco-pouch, but he did not perceive it; I held it near his eyes, yet he still did not perceive it; even when I shook it just in front of his nose, he did not notice it. But when I placed it in contact with his hand, he seized it and completed his cigarette directly. Just as he was about to light the cigarette with one of his matches, I blew it out and offered him instead a lighted match which I held in my own hand; he did not perceive it; I brought it so close to his eyes as to singe a few lashes, yet he still did not perceive it; neither did he make the slightest motion of blinking. He lighted another match, when I blew it out and offered him one of mine, with the same indifference resulting on his part as before. I brought it in contact with the cigarette which he was holding in his mouth, but even when I burned the tobacco of his cigarette he did not notice it.

"On another occasion, he appeared to look for his buttonhole bouquet, noticed his ribbon of the military medal, and appeared satisfied. He nimbly descended the stairway

which he daily frequented, traversed the court of the hospital with the air of a man of business, and went toward the gate of exit. Arrived there, I prevented his passage and turned his back to the gate; he allowed this without any resistance, and then started off in the new direction I had given him, and, in groping about, entered the lodge of the doorkeeper, which opened into the hall where we were.

"At this moment the sun lit up with a bright ray a glass window that closed the lodge on the side toward the court. He seemed to be not at all insensible to the brilliancy of this ray, which probably caused him an illusion of vision, by bringing forward a sensation in keeping with the idea he had in his mind. This ray must have given him the impression of a footlight, for he at once placed himself before it, readjusted his toilette, opened the roll of paper which he carried in his hand, and softly hummed an air, running his eyes over the pages as he slowly turned them, and marking with his hand a measure that was perfectly rhythmical; then he sang aloud, in a highly agreeable manner. When he got out of this state he was like one awakening from a deep sleep or from a state of unconsciousness."

This remarkable case of Dr. Mesnet was utilized by Huxley for the purpose of supporting by facts from mental pathology his theory that mental processes, even of a highly complex character, could be carried on in a purely automatic way without the least interference of consciousness. The mental-like processes can be performed without the least spark of consciousness. This, according to Huxley, is true not only of the poor automaton, the soldier, but also of animal and man in the perfect normal state. The mind has absolutely no influence whatever on our life and actions, not any more than the whistle has on the movements of the steam-engine. The mind, like the whistle, is a by-product. Mesnet regards this case as one of pure automatism, and he describes the case on the theory that all the actions of

the patient are of a purely mechanical nature, without the least presence of consciousness.

A closer analysis reveals the fact that Mesnet himself does not strictly adhere to this point of view. The facts flatly contradict it; the very language he uses in describing the phenomena is saturated with psychological terms and concepts based on psychic experience. A few instances will suffice for our purpose. The patient could perceive his own match when lighted, but could not see that of others. This is hardly a mechanical relationship of a light stimulus to nervous activity; it is one *of personal* selection of stimuli. From a purely physical stand-point, a match, as a match, does not differ in its actions and effects whether it is mine or yours. Again, when a stick was put into the patient's hand, he passed through a series of complex hallucinations, as if he were living over his war experiences, attacking his enemies or hiding from them. On another occasion, he seems to look for his sheets of music, and when a roll of paper is put into his hands a new hallucinatory state develops—he lives over his experiences as an actor and singer on the stage—he sings and acts before an imaginary audience. Under the proper suggestion he could write letters recommending himself to his superiors. When the paper is withdrawn, he looks up with surprise, continues writing on the next pages; and when the letter is finished on the different sheets of paper, he makes *corrections* on the hallucinatory letter. Surely all these facts and many others of the same character clearly indicate that the patient lived in a hallucinatory world of his own. Moment by moment the soldier lived over his past life, *not in memory, but in recurrent sensory experience.* The patient, like the dreamer, lived in his own world *en rapport* only with himself. The states are essentially hypnoidic in character and are of the same type as found in the Hanna case, when the patient lived through his former life in the form of intense sensory experience.

The hypnoidic states, as I have pointed out, arise from the depth of the subconscious and pass through the cycle of their former life. Arising, though, as they do, under the influence of external stimuli, they themselves, as psychic tracts, are independent of the external environment. In fact, the stimuli act simply as mere suggestions. A roll of paper recalls experiences of theatre, the singing of birds revives experiences of mountain climbing. The hypnoidic states are detached, dissociated moments; they come and go without leaving a trace behind them. These disaggregated moments consciousness partake of the character of embryonic secondary personalities, and as such belong to the category of multiple personality.

The hypnoidic personality is extremely unstable, and when left to itself tends to disintegrate. As pointed out in my book, "The Psychology of Suggestion," the hypnoidic personality tends to vanish as soon as it goes through in an abridged form the cycle of its existence. The following cases worked by me in my laboratory, with the assistance of Dr. H. Linenthal, may be regarded as typical of the resurrected lives of the hypnoidic personalities:

Mr. R., a man of fifty, well developed and well preserved. Has never had any serious illness except an acute attack of rheumatism some years ago. He is a business man and does not impress one as a neurotic. He is, on the contrary, very phlegmatic, a calm, calculating business man. He complains of a tremor in his hands, which becomes worse when he is doing something. His writing is illegible. When carrying a glass of water to his mouth, his hand shakes so much that the water spills over. This tremor, he tells us, he has had for eight years or so; it has been coming on gradually, but is getting worse now. He is ashamed to come among people on account of this trouble. He cannot give any definite time of the onset of the tremor. When asked what he attributes the tremor to, he says it is due to a good deal of worry. When asked about

his dreams, he said that they were rather pleasant; all about gaining money.

An examination proved the patient normal in all other respects.

Mr. R. was put into deep hypnosis. He was asked: "Can you tell us the exact conditions and the time when you first perceived the tremor?" "Yes." "When was it?" "It was on the day my wife died. The nurse came in to me from the sick room and told me that my wife was dead. I then noticed for the first time that my hands were shaking violently." "Do you have any dreams?" "Yes." "What are they?" Here followed a long series of dreams which he related one after another, localizing each dream more or less definitely in time.

All the dreams related to his dead wife. He frequently dreams that she comes to his bedside dressed in white and cries bitterly, bemoaning his fate that he is so wretched and is left all alone in the world. He has all kinds of fanciful combinations of dreams in which his wife is the principal figure. He dreams, for instance, of her coming to life again, of his living with her for several years and then losing her again. These dreams, he tells us, excite him greatly; he is thrown into convulsions during his sleep, and frequently shakes so much that he is thrown out of bed. All these dreams are completely forgotten in the morning.

The scene while the patient related these dreams was pathetic in the extreme. While recalling these sad dream-experiences, he seemed to live them through again; he was convulsed with sobs, tears were flowing from his eyes, and his features indicated the most intense suffering and anguish. There was a complete transformation of his personality. The waking Mr. R. was different from the hypnotic Mr. R. as any two individuals can possibly differ. The former is a phlegmatic, calm, calculating business man, having no room in his mind for anything else except

business, talking of nothing else but business worries and money matters. Mr. R. in the hypnotic state is transformed. We no longer have before us a business man of fifty. We see before us a childlike soul displaying a most intense human emotion, a soul most intensely yearning for a lost beloved companion. All business is completely forgotten; not a mention is made of money.

To take another interesting case,[1] worked by me with Dr. Morton Prince and Dr. H. Linenthal: Mr. M., 21 years of age, Russian, came to this country four years ago. He is an intelligent young fellow, has never been ill; has very good habits. The patient was referred to me by Dr. K. M. Davidson, of Boston, for epileptiform attacks on the right side of the body, of which he gave the following history:

About five years ago, when 16 years of age, he attended a ball in his native town. After midnight, he was sent out to look for a ring which the lady whom he accompanied had lost on the way. While searching for the ring he had to pass near a cemetery, and got frightened, as it seemed to him that someone was running after him. He fell down and was picked up in an unconscious condition and brought home. He could not tell what happened during his fall or on which side he fell. For a week he was confined to bed, suffering from spasms on the right side. The spasms consisted of rhythmical shaking of the head, of the right hand and right leg. The whole right side was paralyzed and anæsthetic. Since then the attacks set on periodically about once a year, they come about the same time in the year, and begin about midnight. During last year, however, he had four attacks.

Two weeks after his last attack he was referred to us. On examination the following phenomena were observed: The patient was still affected on the right side, so that he was not sensitive to any form of sensation, such as touch,

[1] Published in the Boston Medical and Surgical Journal, June 23, 1904.

pain, smell, sight, hearing and taste, the left side being fully normal. He could not tell anything about his dream life; he has ordinary dreams.

Though the patient is insensitive on the right side, still it is possible to show that his subconsciousness perceives what his upper consciousness has lost. If the patient is made to look into a glass of water with a light reflected in it, and if his right limb is touched ever so lightly, he sees in the glass a visual hallucination of the number of impressions in the symbolic form of a written numeral. The same holds true in the case of letters, words and objects impressed ever so lightly on his insensitive skin. In fact, the patient manifests an extreme acuity of the senses in the subconscious regions. The hallucinations symbolic of impressions of another sense, when projected on a screen, could be outlined by him, so vivid were they to the patient.

Mr. M. was then put into hypnotic state. He goes into deep somnambulism. In this state he tells us that during the attacks he keeps on dreaming about the fright, fall, and about his illness. In short, he lives the same original experience over again in his subconscious dream life. While examining him during trance, we happened to call attention to his anæsthesia. Suddenly, as if by the wand of a magician, his present personality disappeared from view and the old personality of the accident emerged. Mr. M. went into one of his attacks, living over the same period of his life in Russia. He ceased to understand English and was carried back to his sixteenth year. He cried out in great agony, as of one frightened to death, squirmed and twitched and began to shake. "What happened to you?" we asked. "I fell down," he exclaimed in his native jargon; "I got frightened." He then passed through the movements and shaking characteristic of the attacks. When asked where he was, he answered, "At home." "With whom are you now?" "With my mamma." When the attack ceased, with a shudder, he literally came to him-

self, his present personality returned, and on our question, "Where are you now?" he promptly replied, "At the doctor's."

In this somnambulic state a whole series of outlived and long ago subconsciously buried personalities could be resurrected from their sleep and be made once more to appear in the light of the upper consciousness, each personality having its own chain of memories and peculiar traits of character, but each time, as the sixteenth year personality was resurrected, the typical attack developed with automatic regularity, like a wound-up clock.

The following case of my own may be taken, like the previous ones, as a striking example of hypnoidic states in dream consciousness and of their effects on waking life:

Mrs. A. is 22 years old; Russian; pretty, intelligent, and rather emotional; married; came to me on May 28, 1902. She suffers periodically from attacks of violent headaches, lasting several days. Family history is good, parents are alive, and never suffered from any physical or mental diseases.

Mrs. A. is very nervous; she is easily frightened and has suffered from headaches and pressure on head for quite a long time, but the pain became exacerbated some five years ago. The attack is sudden, without any premonitory feelings, and lasts from eight hours to two days. The headache often sets on at night, when she is asleep, and she wakes up with frightful pain. At the time of the first attack she was very much run down. Patient is otherwise in good condition, but complains that her memory is getting bad. Patellar reflex exaggerated. Field of vision normal. The eyes show slight strabismus and astigmatism, corrected by glasses, that did not, however, in the least diminish the intensity as well as the frequency of the headaches.

Mrs. A. suffers from bad dreams and distressing nightmares, the content of which she cannot recall in her waking state. She also often has hallucinations, visions of two

women wrapped in white, pointing their fingers at her and running after her. She never had any fall, nor any special worry or anxiety; never suffered from any infectious disease. After a persistent inquiry, however, she gave an account of an accident she met with when a child of eight. Opposite her house there lived an insane woman of whom she was mortally afraid. Once, when the parents happened to be away, the insane woman entered the house and caught the child in her arms and greatly frightened her. Another time she was sent out by her parents to buy something in a grocery store. It was night and very dark; she bought the things, but on the way back she saw two women in white with hands stretched out running after her. She screamed from great fright and ran home.

Mrs. A. is very much afraid to remain alone, and especially in the dark. She is not afraid so much in the street as in the house. The two women appear to her now and then, and she is mortally afraid of them.

Mrs. A. was put into hypnotic state. There was marked catalepsy; the eyes were firmly closed and she could not open them when challenged. Suggestion of general well-being was given and she was awakened. On awakening, she could not remember what had taken place in the hypnotic state.

Next day she was again put into hypnosis and went into a deeper state than the day before. When asked whether she thought of the crazy woman occasionally, she replied in the negative. The patient spoke in a low, suppressed voice, the words coming out slowly, as if with effort and with fear. It was then insisted that she should tell one of her recent dreams. After some pause, she said: "Last night I had a bad dream; I dreamed that I stood near a window and a cat came up to the same window; I saw it was 'crazy.' I ran away; the cat ran after me and bit me and scratched me. Then I knew that I was crazy. My friends said that there was no help for me. I dropped the baby, ran, and jumped

downstairs. I remember now that when I fell asleep I saw a woman, maybe it was the crazy woman. I covered myself; I knew I was only afraid and that she was not real. Six weeks ago I saw the same woman, when falling asleep or when asleep; I ran away and she ran after me and wanted to catch me." Mrs. A., in relating these dreams, shivered all over and was much afraid, as if actually living the dream experience over again. "It was this woman who caught me in her arms and kissed me and embraced me and did not let me go until my screams brought friends and my father and they took me away from her by force."

Gradually some more dreams emerged. "I dreamed some time ago that the woman came to me and spilled hot water on me. Another time I dreamed I was in the insane asylum; she came out, told me she was well; I was greatly frightened and ran away." Mrs. A. then remained quiet. After a while she began to relate a series of dreams. Some time ago she dreamed that the woman entered the room where her father was and ran up to him, evidently with the intention of hurting him. Her father ran away and she hid herself in a closet in the next room. "I also dreamed that the woman was shadowing me in an alley. She wanted to get hold of me, while I tried to get away from her. I turned round, and she gave me such a fierce look. It was so fierce. I ran. She could not catch me. I should die if she catches me." Mrs. A. shivered. "Are you afraid of her?" "Not now, she is not here. I did not dream of the woman much before, but some time before my marriage I began to dream of her quite often. In one of my dreams about her I saw people putting cold water on her, and I could hear her scream. It was awful! I dreamed I went upstairs, opened the door and met her face to face. I was badly frightened, but I could not run away, so I jumped out of the window. If I could only not dream about her!"

A very rich subconscious dream life was thus revealed, a life of which the patient was totally ignorant in her wak-

ing state. The dreams referred to the same central nucleus, the shock of her early childhood. These dreams gave rise to intense states of fear and agony. "Some time when I dream I feel something in my head; some pain." The dreams occur between 11 at night and 4 in the morning. After the dream Mrs. A. is afraid to get up in the morning and feels greatly disturbed by her dream experience.

"Sometimes I dream that a big black lady stands near me and is ready to attack me." Mrs. A. could not continue the account of her dreams, as it set up in her an intense emotional disturbance. "Once a year I *must* dream about her. I dream that at least once a year I *have* to dream about the woman."

When Mrs. A. was fully quiet and felt well, some more dreams came up. "Once I dreamed that I had my baby in my arms and the woman entered the room; I got frightened; I could not run away; I tore my dress. The woman said she would not hurt my baby; that she would like to talk to the baby. My husband came in. She petted me and then it seemed that I fainted; I do not know.

"I dreamed many times that I was crazy; I screamed and cried and everybody was afraid of me. As soon as I wake up I forget the dream. I am, however, quite sure of being crazy while I dream. I often dream of crazy cats and mad dogs attacking me. Sometimes I dream of going up a big, big mountain, and then roll down a precipice, where there are horrible people, some kind of devils, who crowd around me, grinning and laughing loudly. They are like crazy people, mad devils."

At this point I asked the patient while in the deep hypnotic state to give a complete account of the insane woman who seemed to have played such an important *rôle* in Mrs. A.'s life.

"The insane woman was the wife of a minister; I now remember that she once told my mother that when still a young girl she became insane and that she was taken to a

magician, who cured her by some powerful charms. She then married and was very much distressed by the fact that her husband did not permit her to wear the charm given to her by the magician. The woman became insane while she was in our house and was very violent. One of those horrible devils so violent looks just like her. I remember she told my mother that she had two children and that in her dream two women wrapped in white came to her and asked her to give them her children's clothes. She gave away the clothes and that is why the children soon died. I was afraid very much that the women in white should come to me, and I often dream of them. I do not believe in it, but some time in my dreams I am afraid of them. I am afraid that they will come, and when they come I get frightened to death." In telling her dreams, and especially the history of the woman, the patient spoke in a suppressed voice, as if choked by tears and mental anguish. She kept the hands folded on her breast, and when I tried to separate them and have them hang down or lie by her side she resisted it, as if it was a matter of life and death to her. "I am afraid; I don't like to keep my hands down. She may come from below and catch me by the hand; I always keep my hands folded on my breast; when I go to sleep I do not want her to catch my hand." Mrs. A. began to shiver from fright, keeping the hands closer to her body. It was then insisted that she must not be afraid, while she was in the hypnotic state.

A further attempt was made to obtain some more dreams as soon as the patient was quieted down.

"I have dreamed so many years of meeting her that I am also afraid at daytime. It is foolish, but I am afraid." She again became quiet. A suggestion was then given to her not to be afraid now, in hypnosis. Mrs. A. could not remember any other dreams. After a while some more dreams began to emerge.

"The woman tried to take my baby away from me. I

got hold of a great big knife and defended my baby. I was taken to prison because I killed, and they took my baby away from me. It was so awful! I was very tired when I woke up. I dreamed the woman came to me; I thought she was well, but she suddenly became crazy. I am very much afraid now of a crazy person, and I am still more afraid in my dream."

Mrs. A. stopped again. Soon more dreams gradually began to emerge, just as long-forgotten experiences suddenly occur to the mind. Once the barrier is broken down or the threshold is lowered, the dreams come in groups and follow in quick succession.

"I dreamed I was bathing and suddenly the woman appeared and took away my clothes; I was very much frightened. The woman wanted me to go with her and promised to return the clothes. I ran into the water, away from the woman; wanted to drown myself; I could feel the water covering me all over; I must have groaned aloud as my husband awakened me from this nightmare."

The next dream that emerged referred far back to her early youth. "When a child I slept with my sister, and used to have many bad dreams. Used to see the crazy woman and also the two women wrapped up in white sheets with stretched hands coming after me." Mrs. A. is mortally afraid of the two women. They also come to her when she is fully awake. She often sees them in the dark. They are both of the same size. "I cannot see their faces, as they are wrapped up, but I can see their forms. They look like the two women of whom the insane woman used to speak. When a child of twelve, I saw them clearly; when sent by mother at night to go to a grocery store I had to pass the fence of a little garden; I could see them quite plainly. They were wrapped in white sheets; their hands were also wrapped up, and they stretched them out toward me. I could feel my hands shake. I ran. When near the house I screamed and ran in. For a long time I was

fearfully afraid. I think now it was a day-dream, but even now they seem to run after me, and I am afraid to turn around. Sometimes, in going upstairs in the dark, I feel their presence and can occasionally see them, but I am afraid to look long at them. I run from them as fast as I can.''

While relating these experiences, Mrs. A. kept her hands close to her body. ''I want them near me; I am afraid.

''When 12 years old I came to this country, and for some time the dreams did not trouble me; I had no dreams about the woman or about the two women wrapped in white. I suppose because I thought they were far away, but then the dreams returned.''

The delusion of the insane woman long gone by has been transmitted to Mrs. A. as a visual hallucination. The headaches were the expression of the hypnoidic states about the insane woman. Association of these hallucinatory hypnoidic states with the upper consciousness cured the headaches.

CHAPTER XV

HYPNOID STATES OR UNDERGROUND LIFE

Hypnoid states consist of the presence of two or more fully independent moments consciousness, they are found in the phenomena of automatic writing, shell hearing, crystal gazing and various other psychopathic conditions.

In automatic writing the patient is in his usual state. He may be carrying on a conversation with someone, while at the same time his hand, in which a pencil is placed, begins and continues writing sentences, descriptions or entire essays and chapters in a well-formulated and lucid manner, the subject's upper or principal consciousness knowing absolutely nothing of what the hand had written. During the time of the automatic writing, the hand is anæsthetic, but only in relation to the subject's upper consciousness. There is evidently a well-organized system of consciousness controlling the automatic writing, since the hand itself may register responses to questions not understood, and sometimes not even heard by the subject. Likewise, if the hand is pricked, although the subject does not feel the prick, the hand will nevertheless make marks to indicate the number of pricks. Immediately after the automatic writing ceases sensibility returns to the anæsthetic hand.

All forms of automatic writings are observed, from mere scratches to highly complicated discourses. In fully developed cases the handwriting is of a spasmodic character, as though executed with single, rapid strokes.

Hypnoid or coexistent functioning dissociated states

may be cultivated by normal, healthy individuals with some success. In some the dissociation is complete, in others it is but partial, and the subject is conscious of what is going on, but he feels that he has no control over the writing nor is it his consciousness that has formulated the writing. Instead of writing, there may be automatic speaking. The phenomena are known under the name of "speaking with tongues." The speaking may range, as in the case of automatic writing, from the simplest to the most complex, from the automatic volubility of meaningless syllables appearing as a new tongue or language to a connected recital of intelligible phrases.

The phenomena of crystal gazing belong to the same category and may be classed with hypnoid states. The vision, the hallucinatory experience, appears to rise from the subconscious, and seems to develop independently of the subject's consciousness. The subject takes cognizance of what is presented to him by the dissociated mental state which develops on the basis of some peripheral sensory experience.

Crystal gazing is analogous to automatic writing. The subconscious activity brings out visual perceptions which appear as hallucinations to the upper consciousness. The upper consciousness sees the pictures projected by the subconscious in the same way as the automatic writer reads the product of automatic writing. The subject may, for example, perform a certain action, such as misplacing an object or reading something unconsciously, and of which he has no recollection. Now the gazing into the crystal may bring out these past experiences as visual hallucinations. Occasionally the subconscious activity may so develop in the phenomena of automatic writing or crystal gazing that automatic actions may be manifested and the patient falls temporarily in a complete subconscious state.

The phenomena of shell hearing belong to the same class as those of automatic writing, speaking and crystal gazing.

The shell seemingly reports to the listener facts and observations lost to the subject's upper consciousness, but retained by the subconscious.

In the many forms of psychopathic anæsthesia of considerable persistence and extent, hypnoid states may be developed; the anæsthetic hand, for instance, will react to various stimuli, handle different things, give intelligent answers in automatic writing to questions not directly heard by the patient. These phenomena can be brought out by various methods.

Most of the cases of functional derangement due to mental dissociation fall under the category of hypnoid states. Various forms of sensory, motor, gastric, emotional and other disturbances, when of functional psychopathic character, in contradistinction to disturbances of functional neuropathic, neuropathic, and necrotic origin,[1] are often due to subconscious systems dissociated from the patient's consciousness and manifesting their activity in the upper waking life. The patient is aware of the distressing results, but has no suspicion of the active subconscious processes that give rise to such manifestations. The dissociated system forms a centre of activity that falls outside the domain of the patient's upper consciousness, the results alone appearing in the patient's waking life.

The hypnoid state really differs but little from the hypnoidic—it is simply the hypnoidic personality working underground and showing its effects in waking life. The hypnoid is the hypnoidic state underground, while the hypnoidic is the fully developed hypnoid state. A case may be regarded as hypnoidic or hypnoid, according to the

[1] By functional neuropathic, neuropathic proper, and necrotic are indicated the various stages in the pathological descending process of neuron disaggregation and cell degeneration in relation to neuron anabolism and katabolism. For a full discussion, see Sidis, Psychopathological Researches, also Neuron Energy, Archives of Neurol. and Psychopathology, vol. i, 1898.

view-point from which it is regarded.[1] Since these hypnoid states are of great importance, both from theoretical and practical stand-points, I take the liberty of giving here a more or less detailed account of a case studied by me and Dr. G. M. Parker:

Mrs. B. C. came to us on April 18, 1903.

Patient is German, age 29, well developed; married four years and has one child. She complains of having attacks of falling down and of vomiting; she becomes nauseated, weak, faint and dizzy, then falls down and vomits "greenish water," as she says. During the course of the attack patient is not unconscious; she hears and understands everything that is going on in the room, but her whole body is "benumbed" and she has no strength to get up. When she gets up there is a feeling of great exhaustion, has headache, and the vomiting keeps up two or three days. When the attack is setting on, all the extremities begin to tremble and she cannot stand on her legs. Patient does not complain of any sensory disturbances, nor of any pains in ears or eyes, but she sometimes suffers from buzzing in the ears. She complains that her memory is getting very much worse, she is becoming more and more depressed, cries often, is very irritable, sleeps badly and restlessly, talks in her sleep and sometimes cries out, has very bad dreams, though she cannot remember the content of the dreams, as she forgets them soon after awakening. The interval of the attacks is from two to three weeks, but of late the interval is becoming much shorter, and she has them now as often as once or even twice a week. The attacks come on any time of the day and have no warning, no aura. The attacks set on soon after she came to this country.

[1] Janet, Breuer and Freud, Hajos and Ranshberg, have done excellent work in this line. Work along the same lines of investigation has been done by me and my associates and published in a volume under the title Psychopathological Researches.

About a year ago she suffered from numerous visual hallucinations, such as seeing cats, dogs, always black in color. These hallucinations were seen in the left field toward the extreme periphery; they were seen with open eyes, at daytime as well as at night-time; they became more distinct by diminution of light and were increased after sleep; they can be made to disappear by turning the head or the eye. The hallucinations were accompanied and followed by states of depression.

In Germany, up to the time of patient's marriage, she suffered from severe attacks of convulsions accompanied with unconsciousness. These convulsive attacks used to begin with an aura, consisting in the sensation of numbness in the feet and formication and tingling, proceeding upward, succeeded by shock, accompanied with bright spots in the eyes, and then followed by falling down, with convulsions of the extremities and general motor spasms. After the attack patient was in a stuporous state, with tremor of hands and legs persisting for about two hours. The convulsive attacks lasted from five to twenty minutes. The frequency of the attacks was about once every two or three weeks. Patient suffered from these attacks since her fourteenth year.

A closer examination revealed the following history:

When B. C. was about nine months old her father died; when she was about the age of six or seven her mother married again. After her father's death B. C. lived with her grandmother. When her mother was confined after the second marriage, patient returned home to take care of the baby. The stepfather disliked her and was very cross to her, ill-treating her, although he was fond of his own children. When about fourteen years of age, patient left school, after having attended it for a period of eight years. As the stepfather would not allow her to remain at home, she went into domestic service, taking care of a little boy. After she had been in the place for about a month she be-

came very restless, would cry often, would walk about the room in great anxiety and anguish. Her mental state was one of depression alternated with states of melancholic agitation; she suffered from headaches, with diffused pains in the whole body; the pains were especially severe in her hands, legs and abdomen. She does not remember any more about it. She did not know whether she had any fainting spells, but she was told by the lady that she was sick and was confined to bed for three days. The doctor who attended her said there was nothing the matter with her; that it was only homesickness. B. C. felt the same way, she was sure she would feel well if she could return home, as she felt an irresistible longing to get back home and see her people. When she felt better and stronger, she went home; she had to travel on foot through woods, but nothing daunted her, as the desire to see her mother and home was so strong.

When she reached home after the great fatigue of the travel on foot, she was met by her stepfather, who scolded her and struck her with a towel. He drove her from the house with curses and told her to return to her work. This was a blow to her, and staggering and dazed, she started back for the place of her employment. When quite a distance from home she was seized with her first convulsive or epileptic attack. She felt faint, something suddenly came over her and she fell unconscious. She was told afterward that she had an epileptic attack, her feet and hands worked. When she came to herself, she saw a number of men around her, and among them her stepfather. Patient cried while relating these experiences of her childhood. She did not return home, but her mother accompanied her to the house where she worked. Since then patient had similar convulsive attacks, with unconsciousness and subsequent stupor once in two or three weeks, and sometimes twice a day. The frequency of the attacks was increased by worry or excitement. B. C. suffered from these epileptic

attacks up to five months after her marriage (1899). Since then, she has had no attacks. She does not remember anything about the attacks; knows only what other people tell her. The ill-treatment of her stepfather seemed to have greatly affected her and must have weighed heavily on her mind. Even now she cannot tell or think of it without depression and crying. The families for whom she worked liked her and were very kind to her. She could not, however, forget the fact that she was driven away from her home and constantly brooded over it. She rarely visited home, as she knew that she was not welcome there, although her mother was very good to her. Finally the families for whom she worked sympathized with her, took pity, and spoke well of her to her stepfather. He became more kind to her, so that when she married he gave her six hundred marks. When she spoke of her wedding, she cried bitterly. She did not tell her husband that she was subject to epileptic attacks until some time after her marriage. Husband reproaches her occasionally and tells her: "You are always sick and you have no children."

B. C. came over to New York seven months ago. When she was there two days she was taken sick and was confined to bed for eight days. She had chills and fever, but soon got over it. She complains that her memory is getting weaker, that she cannot remember many things, and sometimes, when walking in the street, she gets confused and does not know where to go.

A further inquiry disclosed the fact that her child was eight years old; that when about the age of 21 she fell in love with a soldier, who, however, could not marry her, on account of his service in the army. She felt the disgrace keenly, when she realized she was to become a mother. She went to another place to her aunt. Her mother visited her, noticed her condition and spoke to her about it. She kept away from home, from mother, stepfather and brothers. Even now they do not know anything about this

little girl. After the birth of the child, patient visited home and then went to work in another town. No one knew anything about her disgrace except her aunt and uncle, who were glad to take care of the child, as they had no children of their own. About eight months after the birth of her child her lover fell sick, had some lung trouble, and died four months later. This was a blow to her, and she suffered greatly. B. C. is greatly affected when she speaks of her former lover, and she still seems to think and dream of him a good deal. Her husband accuses her of thinking more of the "other man than of himself," although patient denies it. Before her marriage she told her husband of her former love and of her illegitimate child. Her husband loves her, but he does not want her to refer to her former life history. Still the fact remains that her former love has left an indelible impression on her mind; it still deeply moves her; her love and life belong to the past. Her present marriage was not one of love, and her relations to her husband are rather of aversion, and it is quite probable that sexual relations awaken in her disgust, nausea and may have given rise to the vomiting.

The day she was married, as she was leaving church, before getting into the carriage, she heard a voice calling "Clara," "Clara." She looked around, but did not see anyone. She shuddered and thought it was the voice of her dead lover. She did not speak to her husband all the way from the church. She was very much disturbed by this occurrence and often thought of it. She has often been unkind to her husband, while he is so very good to her. Her husband has frequently complained of her indifference and coldness and is very much grieved over it.

B. C. has frequent attacks of crying, accompanied with dyspnœa and with thoracic and cardiac oppression, often followed by great agitation. She does not know the reason

of such attacks; they simply come over her and are uncontrollable. She dreams often and the dreams are of a distressing character; she often wakes up in tears, but does not remember the dreams.

On April 20th she came under our care. She enjoyed her dinner, but an hour later complained of headache, of a throbbing pain. She looked very sleepy and said she did not care to talk to anyone. In the evening patient felt very drowsy, still complaining of headache. She slept for about two hours and a half, and on awaking said she felt much better. She slept the whole night, and toward morning tossed about in bed. Patient told the nurse she dreamed she was at home with her people, but did not remember any more. She seems to think a good deal of her little girl; says her husband tells everyone that the girl is three years old, but she thinks the doctors should know the truth. She seems to be hurt by the fact that her husband is ashamed of her former love and of her child. Patient complains of having specks before the eyes, "little things flying around," as she puts it.

B. C. was put into hypnosis. There was some apprehension, but she went into hypnotic state easily, the hypnotic stage being deep, characterized by sensori-motor disturbances. In this state a revival of subconscious experiences was attempted, especially of those relating to the attacks, apparently epileptic in character, and belonging to what may be termed the first series of attacks, namely, those that began in her fourteenth year and terminated five months after her marriage. The patient was put back to that period of her early youth. The first experience that emerged was the presence of two eyes, described by the patient as "angry and threatening." She remembered she saw those eyes before she fell down in the street. Patient began to cry, became restless, trembling, excitable, respiration increased, but she did not emerge from the hypnotic state. She recognized the eyes as those of her stepfather.

She now remembers clearly that she always used to see those same angry, threatening eyes before the onset of each attack of the first series, that is, before what was diagnosed as "epileptic attacks."

She could now remember distinctly the dizziness that came over her in the first attack. She fell with her eyes open. Two boys got hold of her and put her on a stone; then her stepfather's servants came and carried her into the house and put her to bed. After the revival of the first attack patient felt great fatigue and weakness all over her body. There was a condition of depression alternating with states of great agitation and crying. On awakening from the hypnotic state there was amnesia of all that had taken place in the trance state.

When she returned from the laboratory she told the nurse that the doctor told her to lie down on the couch and that she must have fallen asleep, as she was dreaming about home; but she could not remember anything about the dreams. She could only remember that she rose from the couch; she felt very tired; could not walk. There was something the matter with her feet. Patient felt no pains, had no headache; was restless in her sleep; talked something which the nurse could not make out; exclaimed "Oh!", but when the nurse came to her bed and spoke to her she did not answer; she was fast asleep. In the morning she told the nurse that she dreamt of being at home in Germany, and that she was there with her husband, stepfather and mother. There was a great storm; she could not recollect anything more.

Next day she was again taken down to the laboratory and put into hypnosis. She was again put back to the period of the first epileptic attacks and again the "eyes" emerged, followed by similar excitement and emotional disturbance. "The angry, threatening eyes" preceded the attack as aura and constituted, so to say, the central experience, the nucleus of this dissociated mental system, which

kept on recurring with each subsequent attack. The attacks were really not of an epileptic nature; they were simply subconscious states with intense psychomotor excitement, giving rise to convulsions, apparently of an organic, epileptic character, but really *psychic* in origin and nature. The amnesia of the attack was due to the very nature of the state of dissociation. The "post-epileptic" stupor was the result of a profound emotional and intellectual disturbance, produced by the emergence of the dissociated mental system. The subsequent tremors of the extremities and even of the whole body were the after-effects of the subconscious, emotional state of general excitement, and especially of terror. This dissociated mental system was brought back to the patient's memory and closely associated with that of her waking life.

B. C. was then awakened; there was considerable emotional disturbance, and when she returned from the laboratory she cried much, was very restless and nervous, and complained of headache. When a glass of milk was given to her, she could not hold it; her hand trembled and her teeth chattered; she said: "It was not good what the doctor did to me downstairs." She gradually quieted down, felt more cheerful and happy; enjoyed her dinner; felt well the whole day and relished her supper. She went to bed early, slept more quietly and peacefully than usual. She woke up in the morning, felt very well and enjoyed her breakfast. In hypnosis the same central experience emerged. The subconscious level reached in hypnosis was strongly tinged with an unpleasant emotional tone; the experiences awakened were decidedly of a painful character, they referred to many brutalities that she had undergone when in the hospital confined with the illegitimate child. Patient was very much agitated when recovering from these experiences. When she emerged from the hypnotic state she was very much disturbed, though not so much as before. She told the nurse

that she did not like to sleep so much, that she did not think it was good for her. She did not want to remain alone in the room and asked for the nurse. She gradually quieted down and had good appetite for her dinner. Patient then asked the nurse if the doctor would come again in the evening, and was much relieved when answered in the negative. She then inquired whether other patients were similarly treated, and when answered in the affirmative, she felt contented.

The same day it was tried to bring about visual hallucinations in the waking state; to evoke experimentally hallucinations which the patient used to have some time previously. A glass of water was put on a dark background, the light was admitted from the left side, while the right side was dark. Patient was told to look into the glass of water. After three minutes there was sudden appearance of the face of a dog. The dog was black, with stripes, was threatening and angry, it was very large. This evidently referred to an early experience obtained under hypnosis. When patient was very young, a child of eight or so, she had to pass through some woods on her way to school, and was met once by a big black animal, which she thought was a dog. The animal gave a growl, but turned aside. She was very much frightened and ran home. There was no element of recognition on the part of the patient. Then objects of indefinite shapes appeared. At this time there was great agitation, pain in the eyes, headache, bewilderment and fear which continued for some time afterward. The patient then declared that the water looked very black and strange. She became more and more agitated, and the experiment had to be discontinued. The agitation gradually subsided. She told the nurse that she did not like to look into the water; it upset her.

Patient felt well in the afternoon and was taken out for a walk, which she enjoyed very much, and was very cheerful. She told the nurse in the evening that while she

was lying on the couch, that is, in hypnosis, she had severe pains in the chest and in the head. She said the doctor put his hand on the seat of the pain and said: "You will have no more pain." She then went to sleep, and when she woke again the pain was gone; patient added: "Do you think that is good?"

B. C. slept soundly the whole night and felt well the next day. Next night patient passed very peacefully, though her sleep was somewhat disturbed by unpleasant dreams. She dreamt that she was caught by men and thrown into a cellar with savage dogs. She could hear the howling of the dogs and was afraid to be devoured by them. She also dreamt she was in Germany on some farm, saw a little calf, picked it up, kept it in her arms, but she soon noticed that the calf was all covered with blood, but seemingly not dead. She could remember distinctly seeing her hands smeared with blood. It may be that this dream had some relation to her child and was evoked in this strange symbolic form by the activity of her dream consciousness. When patient woke up she was agitated, her face was flushed with excitement and she complained of headache, all evidently due to the painful dream-experience. These symptoms, however, soon passed off.

A few nights later patient was sighing and moaning in sleep, talking in German, as if very angry, moaning as if in trouble. When she woke up in the morning, she complained of headache; said she did not sleep well during the night; had dreams; could not remember them; had pains all over the body. One time, when she awoke, her limbs felt stiff. Patient, however, soon felt much better, the "dream headache" wore off, and she enjoyed her breakfast and felt very cheerful. She felt well the whole day. In the evening the husband visited her. She became then very restless, until she fell asleep. When she woke up, she was bright and smiling and happy. She had a good dream, and asked the nurse not to tell the doctor.

She dreamt the doctor came to her, made her go to sleep, held up his finger, counted up to ten, and off she went. She felt so well and would not worry any more.

Next morning she was taken down to the laboratory, put into hypnosis, and the subconscious experiences of her early youth were revived, firmly associated with her present life experiences, with subsequent memory in her waking personal life. When she returned she told the nurse: "I was downstairs; the two doctors put me to sleep. I dreamt about home; I saw my father [stepfather; patient began to cry] and mother. Father looked cross, like he did the time I went home when I was fourteen years old. It gave me pain in my head; I cannot forget how cross he looked; I never did anything to make him so cross with me; I had not thought about it a long time until I was downstairs this morning" (patient kept on crying). "I do not want to go downstairs any more." She felt well the whole day. B. C. continued to feel well the next few days, during which time hypnosis no longer produced emotional disturbances.

CHAPTER XVI

THE TWILIGHT OF CONSCIOUSNESS, OR DAMMERZUSTANDE

THERE are some current theories which attempt to refer the amnesia of subconscious states or of the so-called "Dämmerzustände" found in epilepsy to changes in visceral cœnæsthetic sensibility. Cases are brought to show that such changes of sensibility are really found in epileptic states. In order to reproduce an idea *a*, reason the representatives of this theory, the idea *b* with which it is associated and which gives rise to the reproduction of idea *a* is itself conditioned by the total attitude of consciousness; and should that consciousness be modified, then the idea *b* cannot rise, and consequently the idea *a* is arrested and cannot come to the light of consciousness. Now visceral sensibility forms a very important factor in the activity of mental life, and if therefore this sensibility is modified the whole constitution of consciousness becomes changed, and hence the old associations become disturbed and cannot rise; in other words, amnesia results. Epileptic amnesia is supposed to originate in this way, and cases are brought to corroborate this theory. A close examination, however, of the cases adduced in support of this theory brings out fully its doubtful, if not negative character. For the followers of this view have neither proven the supposed change of cœnæsthetic sensibility in the epileptic subconscious states as "Dämmerzustände," nor have they shown, if present at all, to what extent the changes go, so as to justify the amnesia.

Furthermore, granted that there are important visceral changes in epileptic "Dämmerzustände," it is highly ques-

tionable whether such changes give rise at all to any amnesic conditions. For many organic diseases, such for instance as dyspepsia, enteric fever, typhoid, gastritis, cirrhosis of the liver, nephritis, diabetes, and many other physical ailments, whether acute or chronic, in which organic sensibility is involved to a large extent and greatly changed, do not give rise to amnesic states as their characteristic symptoms. Changes, therefore, in cœnæsthetic sensibility do not necessarily give rise to such extensive modifications in the content of consciousness as to disrupt the current of association and produce amnesic states. On the other hand, amnesic states are known to be present without any change of visceral sensibility. It is enough to mention the whole domain of aphasia, which is really amnesia of an elementary form, referring to the more simple elements of mental life. Elementary, however, as the aphasias are, they are still amnesias, but certainly they stand in no relation to visceral sensibilities.

In functional amnesias of the more extensive kind, where whole tracts of mental life are seemingly gone and lost, there may be changes in peripheral incoming sensations; there may be anæsthesias, hypoæsthesias, paræsthesias; but they are usually of a peripheral character and of so slight an extent as to be out of all proportion to the amnesic state. Furthermore, while the sensory disturbances in functional cases, if present at all, are found to be fluctuating and fleeting, the concomitant amnesic states are frequently found to be stable; in other words, the two do not show concomitant changes.

Janet's law that anæsthesias go with amnesias or that modifications of sensitivity go with memory-changes seems to confirm this peripheral theory of amnesia. Unfortunately the relation here is by no means a causal one. Thus in one of the cases the subconscious state was brought about by the shock of a fall, which also accidentally involved the lower extremities. In another case, the hypo-

æsthesia of the leg was due to persistent suggestion accidentally associated with the object producing mental or psychic shock. The aura found in the subconscious states of so-called "psychic epilepsy" are in my researches proven to be just such accidentally associated changes of sensitivity. For in one case, whose aura was sensations of red, it was found that the color red happened to be associated with the shock and first attack, while in another case, whose aura was sensations of green, the color green was found to be similarly associated; still another case, in which the aura was a fetid smell and nauseating taste, it was found that the first attack came on when a piece of fetid, nauseating meat happened to be in the patient's mouth. Whatever may be the connection or association between changes of visceral or of peripheral sensibility, it is certainly not one of a *causal,* but of a *casual* or occasional character; stated in other words, it may be said that the connection is purely central or essentially mental in origin.

The changes in visceral or peripheral sensibility may be casually connected with the subconscious states, or "Dämmerzustände," as both are the effects of one central process; in either case, the relation is purely central in character. Far from affirming that it is changes of peripheral or visceral sensibility that give rise to subconscious states, with their consequent amnesias, the reverse rather may be affirmed with far more truth; it is the subconscious states that give rise to the change of peripheral or visceral sensitivity. In typical organic epilepsy, sensory and motor disturbances do not stand in relation of cause and effect; both are effects of one central cause; similarly epileptic subconscious states and peripheral sensory changes, when present at all, are both of them results of one central process.

Furthermore, the subconscious states and the sensory changes may become entirely dissociated, one appearing without the other. Extensive sensori-motor changes appear without any subconscious states, and on the other hand,

subconscious states are present, with almost no appreciable sensori-motor disturbances. So noticeable is this independence in many cases that it is a current belief that one is a substitute for the other; that where subconscious states are fully developed the sensori-motor changes are at a minimum, and where the sensori-motor disturbances are at a maximum, the subconscious states are at a minimum. In other words, subconscious states are present where the sensori-motor disturbances are absent; or, as it is sometimes put, epileptic mental disturbances are the "psychic equivalents" of typical epileptic attacks, with their loss of consciousness and sensori-motor disturbances.

There is another point of view often maintained by psychologists and psychopathologists, a view which attempts to explain the amnesia of the subconscious states or of the "Dämmerzustände" by reduced "mental intensity." When the activity of consciousness, it is claimed, is weak, then the "Dämmerzustände" take place, and hence subsequently arise retrospective mental gaps or amnesic states. Thus a dream state represents weakened states of mental activity, and it is well known how dreams easily lapse from memory. The subconscious states are taken to be dream states, that is, states of mental activity of low intensity, and hence the resulting amnesic condition.

If we closely examine this point of view, we find that it is not quite correct psychologically. A mental state of low intensity is not necessarily a lowered capacity of reproduction. A weak sensation may be very vivid and well remembered, while on the other hand a very intense sensation may be of very low vividness, and its memory may hence be indistinct or possibly lacking altogether. Mental intensity and reproduction do not necessarily stand in relation to each other. Mental states of low intensity may become easily reproduced, while mental states of high intensity may lapse from memory. Memory depends largely on the *number* and *frequency* of formed associations. Mental

states, with a great number of associations of frequent repetitions, can be more easily revived than states of few associations and of rare occurrence; there are more organized starting-points from which the given state may be brought into consciousness. Should such associations become few and narrowed, then the power of reproduction becomes correspondingly reduced.

Furthermore, the term "mental intensity" is ambiguous and obscure. Does it mean sensory life of great intensity, intense sensations; does it mean vivid mental states, vivid representations, clear and distinct ideas; does it mean a great number of associations awakened, or does it mean mental states having great affective or emotional elements as constituents?

The greatest objection, however, to the theory of "mental weakness" is the fact that it does not accord with experience and observation. They who have closely studied subconscious states in hypnosis, especially in its last stages, know that intensity of consciousness is by no means weakened, that, though highly suggestible, it is still very clear and distinct, and if by intensity is meant anything at all, then it may be said that intensity of subconscious life differs but little from the waking states of the upper consciousness. And still the amnesia after emerging from this state is often profound and complete.

If we turn to cases of amnesia not of the hypnotic type, we find the same truth, namely, that the subconscious states are often clear, distinct, vivid and "intense," differing but little from the normal state, as far as quality of consciousness is concerned. The changes are in the content and form of mental activity. In fact, in one of the cases of double consciousness, the Hanna case, the secondary state was far more clear, far more distinct, more vivid and receptive than was the original normal primary state. Even the so-called epileptic "Dämmerzustände" are not entirely clouded and confused, and quite many cases are found an

examination of which reveals a condition of clear "intense" consciousness; and still they are followed often by a severe form of irretraceable amnesia.

One great error which people are apt to make is to read the nature of things from the terms by which they are denoted. The very word "subconscious" irresistibly suggests to many minds mental states of low intensity. As a matter of fact, the "subconscious" is by no means identical with mental states of low "intensity"; it includes psychic states ranging from the lowest to the highest tension and vividness of mental activity. It may be that for clearness' sake it were better to discard this term "subconscious"; unfortunately we have no better term, and, besides, it has taken root in literature and is highly useful, if used in its right sense, to include the phenomena it is meant to cover. Because states are termed "subconscious," it does not follow that they are of low intensity and vividness. What is meant is the fact that subconscious states fall outside the range of normal consciousness and are dissociated, so that they cannot be reproduced or recognized. In other words, their tendency is toward amnesia in the normal upper consciousness. These subconscious states may be associated and coherent with one another and may thus be enabled to have reproduction and recognition; they may have memory, and that of a very precise and exact character. The subconscious states occurring in epileptic conditions may be of a very low type of moment consciousness and may lack altogether any reproductive or recognitive qualities. In the higher type of subconscious mental life, memory is present for subconscious states, and even for states of the upper consciousness, though the reverse is usually absent; that is, the states of the upper consciousness have no memory for the subconscious states.

CHAPTER XVII

HYSTERIA

A NUMBER of cases of a functional character is known in medical literature under the term of hysteria. What the term hysteria denotes is rarely defined, though it seems to connote much to the mind of the medical student. To some, hysteria is only a matter of "fancy" and "innate cussedness." This point of view is not in accordance with the facts and need not be discussed here, as it is simply a negation of the reality of the phenomena; it is a simple refusal to recognize the validity of the subject-matter. Others define hysteria in terms of "unreasonable will-stimuli," of "sympathies," of unrelated "parallelism." It is obvious that such definitions require no discussion. Those, however, who do make themselves acquainted with the phenomena and try to reduce them to a rational order, attempt to give some precise definition to the term "hysteria" with various success. "Hysteria" is defined as a mental disease. It is, however, evident that such a definition is far from being exact and definite. There are many diseases which are mental in character and which can hardly be classed among the hysterias; the different forms of aphasia, the many forms of mania, melancholias, paranoias, etc., are all mental diseases, but they are not hysterias. To define hysteria simply as a mental disorder is as inadequate as to define man as a two-legged animal.

It is true that very often the psychic aspect of the different forms of disorders that go under the name of "hysteria" must be specially emphasized as against the view that makes of that disturbance a purely bodily affection.

This is perfectly legitimate, in fact, indispensable, but it would not do to base on it a scientific definition, not because it is incorrect, but because it is too general, and hence too vague and ambiguous. It is not enough to define a tiger as an animal, but its differentia should be given; in the same way it is not sufficient to define hysteria as a psychic trouble; its differentia should be added.

What are the special traits or differentiæ of the psychic disturbance known under the term of "hysteria"? The traits commonly given as specific of "hysteria" are: mental instability, suggestibility, weakness or lack of will-power, and emotionality. Now these characteristics are certainly very suggestive, but they are not sufficient to single out and denote adequately the type of "hysterical" infirmities. These characteristics, it can be pointed out, are too general, too indefinite and too vague. For mental instability, suggestibility, weakness of will and emotionality are also to be found in many mental diseases of widely different types. Maniacal states or states of general paresis will answer this description. Besides, the traits are so comprehensive as to include mental states which can hardly be regarded as psychic diseases. The mental condition of children and savages presents just these very traits of character; they are mentally instable, they are highly suggestible, their will-power is weak and deficient, and they are highly emotional. And it will certainly be a strain of generalization to regard children and savages as mentally diseased and suffering from hysterical maladies. The concept of hysteria as well as the outline of its nature remains vague, ill-defined and obscure, and covers a vast number of psychopathological functional affections of various forms and types whose physical basis is not of the permanent type of organic lesions.

A very ingenious theory of the cause and nature of "hysteria" has been recently advanced. According to this theory, the nature of hysteria consists in the abnormally

powerful intensity of the sensory components, concomitant with the reproduced ideas and their associated feelings, bringing about an abnormal intensification of these very feelings. In other words, hysteria is defined as a malady of emotional life, an intensification of reproduced emotions brought about by the abnormal intensity of the associated ideo-sensory processes.

Now it is left untold what those ideo-sensory processes are. Since emotions themselves on any theory, whether peripheral or central, are largely made up of ideo-sensory elements and processes, it is hard to tell how much of the whole generalization is a tautology. The whole theory reduces itself to the very well-known statement that hysteria is simply intense emotionalism. This, however, is nothing but words with but little meaning to them; neither do they define the nature of hysteria, nor do they give the *modus operandi* of the facts of emotionalism in giving rise to the phenomenon regarded as belonging to the type known as "hysteria." The intense ideo-sensory elements should be indicated and their relations to the phenomena under investigation should be determined. Nothing of the kind is done and the theory of intense emotionalism is but a repetition of the current popular views on the subject. It is true that an attempt is made to base this popular view on a more firm basis and express it in more exact scientific terms. Hysterical emotionalism is referred to reproduced ideo-sensory elements having an abnormal intensity. This, too, however, is rather vague, as the reproduced elements are not indicated.

Furthermore, it is hard to understand what is meant by reproduced intense ideas and sensations. Psychologically regarded, this theory, as it stands, is full of ambiguity and does not accord with facts. An idea may be reproduced, but it has no intensity; a sensation has intensity, but then it cannot be reproduced. What the theory affirms is the generalization that all the phenomena falling

under the category of "hysteria" may be explained by or traced originally to the intensity of representative life with its accompanying affective states. In other words, hysteria is regarded as a disease of reproductive mental life. Now it does not accord with facts to find intensity as a quality of representative life; an idea may be vivid, but is not intense, and it is wrong to suppose that, however vivid an idea or representation may be, it should ever become a presentation or sensation. An idea of sound does not sound, nor is an idea of redness red, no matter how vivid it may be made. We can no more reproduce or represent sensation than we can add a cubit to our height. Still more difficult is it to realize a reproduction of affective states and emotions. If there be such reproduction, then it is certainly of a different type than that of ideas, and the two must not therefore be lumped together into one category.

From a general consideration of this theory of emotionalism, it is well to enter into a more detailed examination and see how the theory works when applied to the phenomena that go under the comprehensive term of hysteria. Is this theory of reproduced intense emotionalism a working hypothesis? If we inspect closely the phenomena under consideration, we find that they present sensory, motor, ideo-motor and sensori-motor defects; we find that they present anæsthesia of the different senses in various degrees and also amnesia of different forms and types. How are these facts to be explained on the general theory that takes emotional life as its basis? The anæsthesias are regarded as modifications of peripheral and visceral sensibility, due to the diseased states of the various organs. Now it is these modifications, along with the intense reproduced emotional states, that give rise to the amnesic conditions so often present in patients of the hysterical diathesis. The changes in visceral sensibility work in the same way to bring about amnesia as they do in the "Dämmerzustände" of epilepsy; they so modify the totality of consciousness that certain con-

tents of memory requiring definite mental states for their reproduction cannot be revived. Thus, for instance, the case of Azam, the case of Burret and Bourrou, the case edited by Weir Mitchell, are all referred to the sensory changes found in the peripheral organs. Thus one of the followers of this theory cites cases of Janet, showing such peripheral sensory changes present with the onset of different forms of amnesia and the disappearance of those amnesic states with the return of the sensory states to the normal condition. Thus Janet tells of some of his cases that, with the disappearance of the skin and muscle anæsthesia, the amnesic states have also ceased. In fact, one may even refer to Janet's law that amnesias come and go with sensory disturbances.

The factor of sensory disturbances, however, does not seem sufficient to account for all the phenomena, and the other factor, that of intense reproduced affections and emotions, is brought in to bear on the subject. Hysteria, it is pointed out, is characterized by the important symptoms that reproduced emotions manifest themselves with unusual abnormal intensity. It is the abnormal intensity of emotional life, partly dependent on the changes of peripheral and visceral sensibility, so prevalent in hysteria, that is the cause of the amnesic states. A psychological principle is now being drawn that very intense emotional states suppress the reproduction of ideas and memories associated with them. When an idea *a* is associated with an emotion *b*, then if the reproduction of this idea *a* revives the intense emotion *b*, the emotion *b* exercises an inhibitive influence on *a*, the memory *a* is inhibited, and hence amnesia. The adherents of this view attempt to substantiate it by an analysis of cases. The analysis shows that in some cases a strong emotion brings about the hysterical state with its symptoms. Now it is believed that no sooner do these memories arise to consciousness than their accompanying emotions arise, too,

and with an intensity so great as to inhibit the very memories and give rise to amnesia.

Of course, the question arises as to the validity of the principle of having an emotion inhibit instead of fixing the ideas associated with it. For we find that in normal life, as well as in abnormal mental activity, memories become fixed in proportion to the strength of the accompanying affective states and emotions. This objection is overcome by the reply that this holds true only up to a certain degree of intensity of the affective states. When the intensity of the emotions rises beyond a certain point, then, instead of fixing the memory, the emotion inhibits it and produces loss of psychic content, thus giving rise to the different forms of amnesia.

A closer examination, however, of this theory reveals its questionable character. First of all, it postulates that an emotion revived representatively by an idea differs from the original emotion only in the degree of intensity. This generalization of identifying the qualitative side of presentation and representation and making them differ in degree only is not true to fact. A presentation is not an intense representation, an "intense" idea does not become a sensation, nor is a weak sensation an idea. Affective states and emotions can no more be reproduced by representations, by ideas, than sensations can. Psychologically, it is opposed to facts of observations, and physiologically the theory assumes that the central apparatus and its physiological processes are in structure and function identical with the peripheral sensory organs and their mode of action. One may as well place eyes, ears, nose and tongue in the cerebral lobes. The theory, therefore, cannot be accepted on general grounds, because it is not in accord with the facts of psychology and physiology; in fact, it contradicts their most fundamental principles.

If now from the general review of the theory, we turn to the facts it is assumed to explain, we find that it is also

out of accord with them and that the explanation given is but an apparent one; the very essence of the facts is really ignored. It is contended on this theory that the memories as representations are inhibited by their associated reproduced emotions and hence the amnesic states. Now as a matter of fact, nothing of the kind is really observed in those forms of amnesia that go under the name of hysteria and which, on account of the vagueness of the term and the clustering round it of a great number of invalid concepts, it were better to use the more comprehensive and more adequate designation of "functional psychosis."

The phenomena of functional psychosis are in direct contradiction to this theory of inhibitory reproduced affective states and emotions. If the emotion is to keep the associated representation under inhibition, then it is evident that the removal of the emotion will also remove the inhibition; in other words, in order that the amnesia should persist, the association of the emotion with the idea must be stable, permanent and lasting. Most cases of functional amnesia do not reveal the least trace of the presence of emotional states. On the contrary, indifference, affective and emotional, hypoæsthesia or anæsthesia of the emotional life, is most often the case. Even in the cases where emotions do enter as a factor, they do so in the beginning of the attack, and may bring about a psychic trauma, giving rise to the symptoms characterizing the different forms of functional psychosis. Once, however, functional psychosis, with its psychic states, is originated, the emotion itself is no longer active.

An emotion may work harmful results, somewhat like a physical blow on the head, in producing amnesia; in fact, it may be regarded in such cases as a psychic blow, but it is certainly strange to assert that it is the blow which underlies the nature of the amnesia and is a permanent factor in the psychopathological phenomena, nor can it be asserted that each subsequent attack is preceded by a blow. The

blow is absent, but the psychic state persists. The nature of functional psychosis lies not in the blow, but in the pathological neural disturbances with their accompanying psychic manifestations. Functional amnesia is not kept up by the intensity of emotion; the emotion, if it does occur as the occasion of the mental malady, may pass away, but the amnesic condition remains. In many of my cases of functional amnesia, not the least trace of emotion could be discovered.

Moreover, according to this same theory, sensori-motor changes and disturbances of cœnæsthetic sensibility should be observed, but nothing of the kind could be found. With the exception of the amnesia, not the least difference could be found between the normal state and that of the amnesic conditions. In the M. case the amnesia is of systematized character, in the F. case the amnesia is of a localized character, but in neither could any affective, emotional, nor any sensory changes be found. Even in the Hanna case, where the amnesia was complete and general, the patient possessed excellent self-control, manifested no emotional disturbances and revealed no sensory changes whatever.

As a matter of fact, when sensory changes do occur in functional psychosis, they are not at all of a peripheral physiological character, but of a purely central and psychic origin, often brought about by suggestion or subconscious auto-suggestion. The key to functional psychosis is not to be sought in its occasional factors and circumstances, such as emotionalism and sensori-motor changes, but they must be looked for in disturbances of a purely central character; they must be sought in psychophysiological dissociations of the central neural apparatus due to the rise and fall of thresholds.

Furthermore, the very essence of functional psychosis is entirely overlooked by this theory of intense revived emotional states. Neither the seemingly lost sensori-motor impressions nor the memory experiences are really lost in

functional psychosis. The apparently lost experiences can be shown to be present in the patient's subconscious life. The lost content has not vanished from consciousness; it is present there in a dissociated form. Tapped by psychopathological methods, such as distraction, automatic writing, guessing, hypnoidization, and under conditions favorable to the manifestations of subconscious states, the seemingly vanished content suddenly reappears and stands out clear and distinct in the background of consciousness.

Moreover, it can also be shown that the seemingly anæsthetic spots are really highly sensitive, and the apparently forgotten and lapsed memories are actually present in full to the smallest detail. We may fully affirm the statement which may be termed the paradox of functional maladies that in functional psychosis all losses are present; that all deficiencies are also excesses, that all *anæsthesias are also hyperæsthesias and that all amnesias are also hypermnesias.*

So strongly marked is this the case in functional psychosis that some investigators find that what really requires explanation is not the anæsthesias and amnesias, but the hyperæsthesias and hypermnesias. As a matter of fact, the two are inseparable in functional psychosis; they are but two aspects of one and the same fundamental phenomenon of functional dissociation. What is completely lost to the patient's personal consciousness is present in full in the subconscious dissociated state. The phenomena of functional psychosis originate in *psychic dissociation,* with its concomitant physiological dissociation of neural systems and elements. *Psychologically regarded, functional psychosis is a dissociation of systems of moments consciousness; physiologically regarded, functional psychosis is a disaggregation of neurons systems.*

CHAPTER XVIII

TYPES OF DISSOCIATED PERSONALITIES

Psychophysiological dissociation is at the basis of the psychopathic states of functional psychosis. The occasion or the proximate cause of functional psychosis is invariably present in the dissociated psychopathic states. Thus, for instance, the event and circumstances that have given rise to functional psychosis can always be found, on investigation, in the dissociated moment. Tapping this dissociated moment by different methods, the detachable sensori-motor states with its memories are brought to light and a reassociation is made possible. Such a reassociation removes the psychopathic conditions and the anæsthesias and amnesias vanish. Cases of psychic epilepsy, the many forms of aphasias, fixed ideas and other mental and sensori-motor maladies of like kind may be brought as good illustrations of the truth of our proposition. The experiences and memories are present in the dissociated moment in a subconscious state and do not become synthetized in the functioning personal moment consciousness.

What specially characterizes functional psychosis is the fact that its losses are not absolute, but relative only. What is absent in self-consciousness is present subconsciously. Neither the anæsthesias nor the amnesias are absolute. In fact, far from being the case that functional psychosis manifests itself in losses such as diminished or even total loss of sensibility or of memory, it can be shown that when the subconscious dissociated state is tapped by stimuli ade-

quate to its functioning activity, that hyperæsthesia and hypermnesia take the place of anæsthesia and amnesia.

The apparently anæsthetic spot is shown to be highly sensitive, far more so than in the normal state, and the seemingly lost tract of memories is present to the minutest details. Thus in the D. F. case, the visual stimulations that were outside of her greatly contracted field of vision were apparently not perceived by the patient. An examination, however, revealed that they were actually present in the patient's mind, but in such a condition as not to be directly reached by the active systems of associations constituting for the time being the patient's personality; in other words, the impressions, the sensory experiences existed in a *detached* form, in a form dissociated from the rest of the associative systems of the patient's personal mental activity. Once, however, these detached, dissociated systems were reached by stimuli appropriate to them; then it became clear that not only were the stimulations perceived, but the perception was highly delicate and sensitive. While the field of vision in self-consciousness became greatly contracted, that of the subconscious became enlarged beyond the normal. There was the anæsthesia for the contracted personal consciousness and hyperæsthesia for the dissociated consciousness.

Similarly in the case of F., where whole tracts of memories were apparently completely lost from personal consciousness, they were found in all their manifold details in the subconscious, clearly revealing the important fact that here, too, personal amnesia is dissociated hypermnesia. The central truth of functional psychosis is psychophysiological dissociation giving rise to the two opposing and apparently contradictory sets of symptoms or manifestations. The threshold of sensitivity and recollection seems to move in two opposite directions; while there is a rise of threshold to maximum in the self-consciousness, there is also a fall of the threshold to minimum in the subconscious. *This simul-*

taneous rise and fall of thresholds for sensitivity and recollection may be regarded as the paradox of functional psychosis.

The paradoxical side of this simultaneous rise and fall of the thresholds becomes perfectly plain and clear when we remember that all functional psychosis is a dissociation of mental systems. The dissociated system falling out of the main organization of the functioning systems gives rise to limited anæsthesia and amnesia. Reached, however, through appropriate and adequate stimulations, they reveal a full account of their very isolation and dissociation from the rest of functioning systems, disclosing their entire content, manifesting hyperæsthesia and hypermnesia. In reality, the two seemingly contradictory manifestations of rise and fall of threshold for sensitivity and recollection are both two sides of one and the same phenomenon; both are related to one and the same central fact of functional psychosis—*psychophysiological dissociation,* the dissociation and disaggregations of systems of central neural elements with their concomitant psychic systems or moments consciousness.[1]

The phenomena of simultaneous functioning of both personal consciousness and subconscious systems cannot be explained on the theory of emotionalism, and the facts, moreover, directly contradict that theory. Thus in the subconscious motor manifestations of automatic writing experiences are recorded by the patient, apparently in an automatic way, while he is busy reading or talking, the experiences being of a nature unknown to the patient, and the act of recording remains also unknown. The same experiences may also be manifested in the form of whispering, occurring in an automatic form, the patient remaining entirely unconscious of the whole occurrence. The theory of emotionalism has no explanation of these phenomena, but on the dissociation theory such phenomena should

[1] See part iii, chapters xi, xii.

naturally be expected. The psychophysiological systems that have become dissociated carry on their functioning activity side by side with the main systems, with the personal consciousness.

Furthermore, we should expect to find that the organ temporarily possessed by the subconscious dissociative systems, such, for instance, as the hand or the tongue, should for the time being fall outside the control and consciousness of the main personality. Now we actually find this to be the case. When the hand of the automatic writer is pricked, he does not feel it, though the dissociated consciousness does. On the theory of emotionalism, there is absolutely no reason why the facts should be of such a character.

The same holds true in cases of amnesia, where the automatic writing records events, totally unknown to the subject, occurring during the time he is attentively reading or engaged in active conversation. Two streams of consciousness run here side by side; two moments are active simultaneously. The theory of emotionalism can give no reason for these phenomena. The theory of dissociation, on the contrary, not only explains them, but in fact makes them absolutely necessary.

Instead of simultaneity, functional psychosis may present phenomena of succession of an alternate character. Memories may alternate, what is known to one state is unknown to the other. The alternate states may form series which know each other. What account can the theory of emotionalism give of these phenomena? None whatever! If an intense emotion brings about an amnesic state, then the removal of the emotion and the coming up into consciousness of the inhibited forgotten content should not be accompanied by a new amnesia. The theory of psychological dissociation once more can account fully for these phenomena, in fact, it requires their occurrence, if the theory is to be substantiated and verified at all. Two or

more dissociated systems, two or more dissociated moments may function simultaneously or successively. When they do function in succession, what should happen? Naturally the phenomena of alternating amnesia.

The interrelation of the alternating states may be of such a character that they may be completely unknown to one another; or they may be known to one, but not to the other. Thus the first series of states may not know the second series, nor the second the first; or while the first series does not know of the second, the second series does know the first. In the first case the dissociation is complete; in the second case, the dissociation is fully present in the primary series, but not in the secondary. Suppose, for the sake of illustration, consciousness consists of moments A, B, C, D, E, F, then in the case where the states are unknown the primary series may consist of A, B, while the secondary series consists of C, D, E, F; both series are independent and dissociated, and as such are unknown to each other. In the case, however, where the secondary knows the primary, but not the reverse, then the secondary consists of all the functioning moments, while the primary consists only of A, B, and as such it does not know the rest of the moments, C, D, E, F, etc. Now, while on the theory of dissociation we should expect such interrelation in the dissociated moments, on the theory of emotionalism, the phenomena of alternating memory-series and their interrelations remain an insoluble mystery.

The secondary states may be wide and extensive enough to include the primary states, or they may be so narrow as to exclude them. In the former case, the secondary states may be regarded as more or less complete states, while the primary states are the incomplete ones. Frequently, however, both primary and secondary states are incomplete, and while they may have in common many of the lower automatic and secondary reflex psychic activities, they lack common elements of conscious memory, and

hence there is no recollection of one series by the other. The whole series of primary states, however, represents a flowing, synthetic, organic unity with recognition and recollection of all the primary states; while all the secondary states form another independent, but also an organic unity, having recognition and memory for all the secondary states that enter the flowing unit. In other words, two personalities are formed which to all intents and purposes may be regarded as independent of each other, being unconscious of each other and having two separate centres of synthesis, giving rise to the phenomena known as double consciousness.

If the cycle appears but once, we have *monocyclical bimorphosis;* if the cycle is repeated, *polycyclical bimorphosis.* There is, however, no reason why the separate series should be limited to two, although this is the most common occurrence. There may be many separate series, with as many independent foci of synthesis, giving rise to as many different individualities. In such a case we have the phenomena of multiple consciousness or of multiple personality; in short, the phenomena of *polymorphosis.* If the cycle occurs but once, then the polymorphosis may be said to be *monocyclical;* if the cycle is repeated, the polymorphosis is *polycyclical.*

The formed personalities in polymorphosis act as independent individual beings and enter into relations, conversations and discussions with one another, the whole presenting a dramatic play in which many personages take active part, successively as well as simultaneously. Such, for instance, are those functional cases of multiple personality, reported by many writers, cases which to a certain extent may be reproduced artificially. These many personalities may fuse and form a new personality with all the contents of memory belonging to them, and as such may have recognition of all of them.

At this point let me emphasize the fact which has been

but too often entirely overlooked, namely, the fundamental difference between reproductive amnesia and that of a purely recognitive character. In amnesia of reproduction, the very contents of memory are lost, whether functionally or organically, whether relatively and temporarily or absolutely; in amnesia of recognition, the content of memory on examination can be shown to be present and reproduced, but it is not recognized as belonging to one's past life. Amnesia of recognition is no doubt due to a great narrowing down of associative connections brought about by the process of functional dissociation, affecting the particular content. For recognition, as we have shown, is a function of associative systems, recognition becoming more localized in time and more specific in proportion to the number of associative interconnections. Recognitive amnesia depends on a very limited field of associative activity, or rather on a very great extent of dissociation, while amnesia of reproduction is the outcome of *complete functional dissociation.* In both cases the psychic content is retained; in one case it is reproduced only, but not recognized, in the other it is neither recognized nor reproduced.

Now, in the phenomena of bimorphosis and polymorphosis, whether coexistent or successive, the same important distinction between amnesia of recognition and amnesia of reproduction should be maintained. This distinction gives us a wider, deeper and clearer view of the phenomena and their interrelation. These dissociated streams of thought, these various foci of mental activity, these individual moments developing into fully fledged personalities, since the detached fragments of the personal moment have a tendency to become personalities in their turn and thus reproduce the type of moment from which they have become detached, may stand in different relations to one another. The newly developed personality formed by dissociation may know the rest, but not recognize them, or it may not even reproduce them, in either case the rest are regarded as total strangers.

The quasi-individualities formed may be sharply defined in character, with strong claims of being independent personalities, and though often bringing confusion in their wake, they are jealous of their independence and strenuously resist attempts at fusion. The quasi-personality puts forth claims of being an independent, objective individual and not even related to the patient's personality, of which it is really a constituent. The Flournoy case and other related cases are of this type of polymorphosis.

In cases of polymorphic personality we usually find one or two predominating personalities, which present a high degree of stability and individuality, while the rest are unstable; they come and go and get character and individuality by insistent questioning and indirect suggestions given to them by outside people and their surroundings. There is no doubt that the very interplay of the principal dominating personalities as well as of the subordinate ones is in itself an important factor in the strengthening of the various crystallized individualities, which at first may come into being in a rather amorphous condition. The interrelation of these different quasi-individualities, though seemingly so aggressively independent, is really a very intimate one; they are all chips of the same block.

CHAPTER XIX

A SINGLE APPEARANCE OF A SECONDARY PERSONALITY

Cases of double and multiple personality, though few in number, have been published and republished, but they have not been given a close analysis. They always remained mysterious freaks, monstrosities of the human mind, and were described as scientific curiosities. The lay mind regards them with fear and awe, as mysterious manifestations of the supernatural; the scientific world looks at them as rare, exceptional phenomena, to which science has no key and which, on account of their exceptional occurrence, may as well, for "scientific purposes," be neglected. When the Greeks for the first time discovered electricity in the "electron" or amber, they considered it a freak of nature, an exception. It was reserved for the future generations, two thousand years later, to demonstrate the potency of electricity. Psychologists with one accord have passed the verdict: cases of multiple consciousness are exceptions to the law. From the stand-point, however, of our psychophysiological theory of the mind, the phenomena of multiple personality are full of meaning and import. Far from being mere freaks, monstrosities of consciousness, they are in fact shown to be necessary manifestations of the very constitution of mental life. *Multiple consciousness is not the exception, but the law. For mind is synthesis of many systems, of many moments consciousness.* The phenomena of multiple personality are due to disintegration of mental synthesis, to dissociation of many complex systems. Instead of being neglected by psychology, these phenomena, on the contrary, should form its very basis. *One great*

principle must be at the foundation of psychology, and that is the synthesis of multiple consciousness in normal, and its disintegration in abnormal mental life.

The consideration of the importance of the phenomena of double and multiple personality induces me to undertake here the work of analysis, however brief, in order to bring out the main points of their agreement and difference. An analysis of these cases, along with the experimental study of the Hanna case already presented to the reader in previous pages, may help us to formulate the law of the phenomena known as "double or multiple consciousness."

We may begin with the following case, reported by Dr. Osborne in *The Medico-Legal Journal* for 1894:

"The subject was a man of muscular, somewhat angular outline, past middle age, in admirable health, and so far as is known free from any personal or inherited neuropathic taint. For many years he had resided in a thriving town near Philadelphia, and by strict application to his trade as tinsmith and plumber, had accumulated considerable means. With these resources he at last opened up an establishment of his own, and, being singularly industrious and straightforward, he prospered steadily in his business. As his sons grew up they shared in the business, and at the time of his disappearance had materially assisted him in the execution of some large contracts, from which he realized handsome profits. For years he had enjoyed ordinarily good health, and was not known to possess any eccentricities or morbid tendencies. His domestic relations were harmonious, his social position better than ever before, and he was not known to have any secret, immoral, or illicit indulgences of any kind whatever.

"The Sunday of his disappearance he remained in the house all day, as it was a dull, gloomy November day, engaged mainly in reading and in play with his younger children, to whom he was greatly attached. About four

o'clock in the afternoon he got up from the lounge on which he had been reclining, reading, changed his house-jacket for an ordinary business-day coat, slipped on an easy pair of shoes, and, to his wife's questions, stated he was going out for a short walk in the street 'for a little fresh air.' Noting the time, she cautioned him not to go far, as they would soon have dinner. He promised not to keep them waiting, declared he would be back in a few moments, and that he was only going for a little turn in the main street, on which his house faced. He quietly and leisurely stepped outside the door, and although a conspicuous figure in the town and perfectly well known to nine-tenths of the people of the vicinity, he disappeared as mysteriously as though he had, as they say, 'vanished into thin air.' None of the townspeople saw him, although the streets were alive with the usual Sunday afternoon strollers. He left no trace. Rewards and detectives proved unavailing. When it was necessary to wind up the affairs of the establishment, it was found that he had taken no money, but that his wife and family were handsomely provided for. In due course of time the business was finally disposed of, the property sold, and the wife and family removed to Chicago. The family gave up all hope of ever finding even a clew to the long-lost husband and father.

"Two years had almost passed when, in a tin-shop in a town in one of the far Southern States, where a number of men were engaged at their trade, suddenly one of them dropped his work and cried, as he pressed his hand to his head in a dazed, bewildered way: 'My God! where am I? How did I come here? This isn't my shop. Where am I? What does it mean?' At first the men were disposed to laugh at the reserved man, who had worked for several months so quietly by their side, and of whose history they had not been able to learn a word, but when they saw his changed expression, the perspiration standing on his brow, his nervous twitchings, and noted his piteous appeals, they

realized that it was all something far from jest; as he was known as a sober, most exemplary-behaved man, they could not charge him with inebriety. They called him by a name that was now strange to him, and they insisted he had told them such was his name. At last, trembling with suppressed emotion, he made his way to the proprietor, who was quite as much startled by the man's talk and manner as had been the men below. After months of wandering and of work combined, during which period he had aged considerably, he was now awakening from—shall we say his somnambulistic sleep?

"It was with some difficulty that he made the proprietor understand his true condition or believe his story of a Northern home, a family, and a prosperous business. The proprietor only knew him as a wandering tinner who had drifted into the town, sought work at his trade, was employed, proved to be a reliable, skilled and attentive workman, and regarding whose antecedents the proprietor had not inquired and the workman had not volunteered any statements. Under the fictitious name he had given he had been known and paid, but he had no knowledge of the past. He remembered nothing. At last a dim recollection came over him of that fateful Sunday, his rising to go out, the request to come back for dinner, his promise to do so in a few minutes, and then all was a blank. He had no money, although he had worked steadily for some months in this shop and had been paid good wages. What he did with the money, it seems, has never been discovered.

"After ascertaining the whereabouts of his family, he made straight for Chicago, where, by the last accounts, he was living his usual normal life. Somewhat mystified over his realization of the strange freak in which he figured, although feeling well and apparently in normal mental balance, he yet realizes that he has been the central figure in some over-strange mental phenomena, quite mysterious enough to make him, at times, doubt his sanity.

There are no facts explanatory of the prime cause of his disappearance, to account for the failure of his neighbors to detect his flight, to explain his wanderings, or to solve the conditions of his return to his normal self."

In *The Psychological Review* for 1894 Dr. Dana gives the following account of an interesting case of double consciousness that has come under his personal observation:

"The patient, Mr. S., aged 24, was an active, intelligent and healthy young man. Though coming of a somewhat nervous stock, there is no actual psychosis in the family. He had himself always been well. His habits were good. For a year or two before his trouble came on he had been subjected to some nervous strain, but it had not perceptibly affected his health or spirits.

"About two weeks before his accident he had some financial trouble, and on coming home had a 'nervous chill.' However, he seemed perfectly well next day and continued his usual duties. On Friday evening, November 18th, he retired as usual. Next morning, as he did not appear at breakfast, a member of the family entered his room and found it full of gas and the patient lying unconscious in bed. The escaping gas was due to a leak in the pipe, as was subsequently found. The stop-cock of the gas-burner was turned off, and there was no possible reason for or suspicion of suicide. The patient was, as stated, unconscious, the face livid, the lips blue, the eyes open, the respirations slow and stertorous, sometimes almost ceasing.

"The family physician, Dr. Rodenstein, was called, and worked over him for three hours before the breathing became natural and his life seemed out of danger. He became partially conscious by 4 P.M., and to a clergyman who had called he talked rationally, but not clearly. Next morning he recognized his sister and father, and said he thought he was losing his mind. In the afternoon he became somewhat delirious. He slept that night, but during the succeeding six days his mind wandered and he was ap-

parently distressed and excited. He was oppressed with the idea that someone wanted to take him away and do him bodily injury. He talked about a trip he had been expecting to make to Washington, and called for his time-tables. He spoke also about his business and of various plans he had been intending to carry out. On Tuesday, four days after the accident, he was seen trying to read a newspaper upside down. On the eighth day he was taken to Dr. Granger's sanitarium. He went without trouble, though he was still somewhat excited and maniacal. That night he slept, and next morning awoke free from any signs of mania. He was quiet and sane in every way.

"From this time the evidences of his amnesia and changed personality were apparent. He dressed himself neatly and with his usual attention to his toilet, understanding apparently the use of the various articles of dress. He showed by his conversation at once that he did not know who he was or where he was, and that his conscious memory of everything connected with his past life was gone. His vocabulary at first was very limited; he could only use familiar words, and could only understand language of the simplest character, such as that bearing on the things immediately about him. He did not know the names or uses of the things in and about the house, though he at once remembered and never forgot any name told him. Consequently his vocabulary and understanding of conversation rapidly increased. He had a German attendant, and pronounced many of the new words with a German accent. Everything had to be explained to him, such as the qualities and uses of the horse and cow and of the various articles about the house. Yet he would sit at the table and eat his meals with his former neatness, preserving also the courtesies and amenities of a gentleman, but he could not understand why he did certain things until it was explained. He did not recognize his parents or sisters or fiancée, though he said that he had always known

the latter, and his great desire and longing was to have her with him. He did not remember the slightest detail of his former relations with her, and did not know what marriage meant or the significance of the filial relation. Those persons whom he had liked very much before he seemed especially glad to see, though he could not explain why. He could not read, and did not even know his letters or figures. But he soon learned both to read and write simple sentences involving ordinary words.

"His vocabulary was gradually increased, but even two months after his accident he could not read a newspaper understandingly, except simple accounts of every-day happenings. He was naturally slowest in understanding abstract terms. He learned figures and arithmetic very quickly and could soon do ordinary arithmetical computations easily. He had been accustomed to play billiards a little, but played the game badly. He very soon learned to play again, appreciating the value of angles, and before long he became much more skilful than he had been in his former state. He had always been clumsy with his hands and never liked mechanical work or showed the least capacity for it; he never could draw or carve. With a little instruction from another patient he soon became very skilful in carving and worked a monogram in the back of a brush in a most creditable manner. He also made a shuffleboard, doing the work very neatly. He showed, in fine, a much greater cleverness with the hands and finer development of muscle-sense than he had had before.

"He used to play and sing a little. About six weeks after the accident, he picked out a tune on the piano, which he had known long before, but had not heard or played for a year. He did not know what it was, or associate it with any early memory. He sang some of his old songs and played a little on his banjo. The old musical memories were there, but dissociated from any thoughts of the past. He was very imitative and his memory for everything told

him was extraordinarily retentive. He had always been careful and even fastidious about his person, and he continued to be so. His habits of courtesy and affability continued the same.

"He had had some religious upheavals in the past. Two or three years before he was distinctly and positively atheistical; later he was more inclined to theism and agnosticism. In an argument which I undertook with him to test his logical powers and knowledge of abstract ideas he showed a distinctly atheistical state of mind. His views were those held some years previously, not his later ones. In argument he showed considerable dialectic skill and logical power. But he evidently could not understand any conceptions at all abstract. His 'mind stuff' was made up of conceptions closely related to his recently acquired practical knowledge. He had previously acquired a special repugnance to any form of religion, and he showed this feeling of antagonism in his conversation.

"He was even-tempered and obliging. He had never been demonstrably affectionate, and was not in his new state except as regards his fiancée, about whom his thoughts and feelings were intensely centred.

"If one were to meet him and discuss ordinary topics, he would show no evidence of being other than a normal man, except that he might betray some ignorance of the nature or uses of certain things. His conversation ran chiefly on the things he did every day and on the new things he every day learned. He was exactly like a person with an active brain, set down in a new world, with everything to learn. The moon, the stars, the animals, his friends, all were mysteries which he impatiently hastened to solve. He was somewhat sensitive to his condition and did not like to meet persons whom he had known before. He cherished also a lurking suspicion that someone might want to take his fiancée away from him. But he never was in a passion, never became incoherent or delirious, had no delusions

or hallucinations, and was not in the slightest degree demented.

"He spoke of his own mental condition, and seemed to understand that it was not right. He was very anxious to get well.

"Physically his health was perfectly good. He had no anæsthesia of the skin, no limitation of visual or aural fields, no stigmata of a trance or hysterical state. He slept well, and so far as I know had no dreams. He had a tendency to coldness and redness of the extremities, and there was evidently lack of vasomotor tone. At times, when a little excited, he would move his head constantly from side to side, as if working in an uncomfortable collar. This was a violent exaggeration of a habit I observed that he had when in his normal condition.

"On three occasions I hypnotized him, using the methods of Braid and Bernheim combined. On the second and third trial I put him in a light degree of hypnotic sleep. During this I told him that after waking at a certain signal he would go through certain acts, such as rubbing his eyes, walking about the table, opening the door and giving a certain greeting to his mother. Also that at a certain hour in the evening he would remember the past. He did everything that I suggested except the last. At the time named, in the evening, he simply said, without suggestion, 'Dr. Dana told me to remember something, but I can't do it.'

"I saw him once or twice a week at my office. He continued in much the same state day after day. His knowledge increased so that he was able to go about alone to a considerable extent, and I had begun to advise his going to his old place of business and learn something of his old work.

"At the suggestion of Professor Josiah Royce, to whom I gave some account of the case, I told him to get some of his old love-letters and copy them; also to copy some of the prayers that he used to say daily as a boy, and finally to

get some of his old business accounts and copy them off; I was in hopes that some of these things might revive old memories by appealing to his affections, his religion, and his business instincts. He did this, but with no apparent success.

"On February 15th, Friday evening, exactly three months from the time of his attack, he went to see his fiancée. She thought after the interview that he was rather worse, less like himself. She cried that night when he left, thinking he would never get well. While riding home, with his brother, he said he felt as though one-half of his head was prickling and numb; then the whole head, then he felt sleepy and was very quiet, but did not fall asleep. When he got home he became drowsy and was carried to bed, where he fell asleep. At about 11 o'clock he awoke and found his memory restored. He remembered distinctly the events of three months ago; his visit to his fiancée, his supper at the club afterward, his journey home, his shutting his bedroom door and getting into bed. His memory stopped there. He did not recall a thing that had occurred between times.

"He knew all his family at once and was plainly just the same man as before. But the three months were an entire blank to him. Next day he came to see me, but did not know me (I had never seen him before his accident). Not a thing connected with the three months could be recalled. It was so much taken entirely out of his existence. He at once resumed his old work and habits and has continued perfectly well up to the present time."

This is one of the simple cases of double personality. The patient lost consciousness due to the action of a toxic stimulus and when he awoke a whole tract of his life experience was gone. Memories of his former life were swept away from the domain of his upper consciousness and submerged into the subconscious. The lost tract of consciousness seemed to have involved a large mass of psychic con-

tent, inasmuch as but the simplest systems were preserved to the upper consciousness, while the more complex were erased from his conscious memory. Apparently new systems had to be developed, new adaptations to the complex conditions of the environment had to be learned. The process of acquisition, as it is usually the case with such forms of amnesia, is rather accomplished with extraordinary ease and rapidity, clearly showing that the old content is really present in the subconscious. It is not clear from the account as to whether the patient had some general feeling of recognition or familiarity in the process of learning by the help of his attendants. As far, however, as it can be judged from the report, this feeling was absent.

The psychic content has become greatly reduced in the secondary state; only the instinctive, automatic, secondary automatic habits of life, as well as words and phrases of a simple character, have alone become the possession of the secondary personality. The dissociated moment formed was narrow and constricted, as it is the rule with secondary personalities formed after a physical or psychic shock. The accident giving rise to a state of unconsciousness, formed the gap, the chasm, between the two personalities, primary and secondary. The state of unconsciousness formed the hypnoleptic state which separated two dissociated moments, two persons. No amount of suggestion could bridge over the two dissociated mental states.

This case, like the rest that follow, has no doubt a full claim to double consciousness or double personality, because the two dissociated tracts of consciousness form separate moments, so to say; they keep strictly apart; their conscious experiences do not fuse; they have their own past, present and future, their own retrospect and prospect; each possesses its own chain, indissoluble chain of memories which run independently side by side or in alternation; they cannot be directly attached to each other, not any more than the life and memories of one person can be fused and

organically united with those of another person and form one personality of the two individuals. The two streams of consciousness cannot be directly bridged over; not even hypnosis suffices. One may know of the other by information, but they are not directly conscious of each other. The two dissociated personalities, with a common stock of instincts, form a kind of mental dicephalus; they are like two individuals with a common organism between them.

CHAPTER XX

THE REAWAKENING OF THE SECONDARY PERSON

In the preceding cases, the secondary personality appeared but once and then disappeared from life activity. Can it be shown that such a personality once formed in the womb of the subconscious and born and grown up in full consciousness and finally disappearing from life, is really not dead, but only submerged in the subconscious? Can this seemingly dead and buried personality be resurrected and brought to light, be made once more to enter the cycle of life and then be submerged again into the same obscurity whence it came, like the shade of Samuel recalled by the witch of Endor?

Yes, this can be done, and in fact it has been accomplished. As examples, we may take the following interesting cases:

The striking case of Ansel Bourne, described by Professor James in his "Psychology" and reported in "The Proceedings for Psychic Research," is very interesting and clearly demonstrates the possible resurrection of the entranced and apparently dead secondary personality.

"The Rev. Ansel Bourne, of Greene, R. I., was brought up to the trade of a carpenter; but in consequence of a sudden temporary loss of sight and hearing under very peculiar circumstances, he became converted from atheism to Christianity just before his thirtieth year, and has since that time for the most part lived the life of an itinerant preacher. He has been subject to headaches and temporary fits of depression of spirits during most of his life, and has had a few fits of unconsciousness lasting an hour or less. He also

has a region of somewhat diminished cutaneous sensibility on the left thigh. Otherwise his health is good, and his muscular strength and endurance excellent. He is of a firm and self-reliant disposition, a man whose yea is yea and his nay nay; and his character for uprightness is such in the community that no person who knows him will for a moment admit the possibility of his case not being perfectly genuine.

"On January 17, 1887, he drew $551 from a bank in Providence with which to pay for a certain lot of land in Greene, paid certain bills and got into a Pawtucket horse-car. This is the last incident which he remembers. He did not return home that day, and nothing was heard of him for two months. He was published in the papers as missing and foul play being suspected, the police sought in vain his whereabouts. On the morning of March 14th, however, at Norristown, Pa., a man calling himself A. J. Brown, who had rented a small shop six weeks previously, stocked it with stationery, confectionery, fruit, and small articles, and carried on his quiet trade, without seeming to anyone unnatural or eccentric, woke up in a fright and called in the people of the house to tell him where he was. He said that his name was Ansel Bourne, that he was entirely ignorant of Norristown, that he knew nothing of shopkeeping, and that the last thing he remembered—it seemed only yesterday—was drawing the money from the bank, etc., in Providence. He would not believe that two months had elapsed. The people of the house thought him insane; and so at first did Dr. Louis H. Read, whom they called in to see him. But on telegraphing to Providence, confirmatory messages came, and presently his nephew, Mr. Andrew Harris, arrived upon the scene, made everything straight, and took him home. He was very weak, having lost apparently over twenty pounds of flesh during his escapade, and had such a horror of the idea of the candy-store that he refused to set foot in it again.

"The first two weeks of the period remained unaccounted for, as he had no memory after he had once resumed his normal personality, of any part of the time, and no one who knew him seems to have seen him after he left home. The remarkable part of the change is, of course, the peculiar occupation which the so-called Brown indulged in. Mr. Bourne has never in his life had the slightest contact with the trade. 'Brown' was described by the neighbors as taciturn, orderly in his habits, and in no way queer. He went to Philadelphia several times; replenished his stock; cooked for himself in the back shop, where he also slept; went regularly to church, and once at a prayer meeting made what was considered by the hearers a good address, in the course of which he related an incident which he had witnessed in his natural state of Bourne.

"This was all that was known of the case up to June, 1890, when I induced Mr. Bourne to submit to hypnotism, so as to see whether in the hypnotic trance his 'Brown' memory would not come back. It did so with surprising readiness, so much so, indeed, that it proved quite impossible to make him while in the hypnosis remember any of the facts of his normal life. He had heard of Ansel Bourne, but 'didn't know as he had ever met the man.' When confronted with Mrs. Bourne, he said that he had 'never seen the woman before,' etc.

"On the other hand, he told of his peregrinations during the lost fortnight, and gave all sorts of details about the Norristown episode. The whole thing was prosaic enough; and the Brown personality seems to be nothing but a rather shrunken, dejected and amnesic extract of Mr. Bourne himself. He gives no motive for the wandering except that there was 'trouble back there' and he 'wanted rest.' During the trance he looks old, the corners of his mouth are drawn down, his voice is slow and weak, and he sits screening his eyes and trying vainly to remember what lay before and after the two months of the Brown experience.

'I'm all hedged in,' he says; 'I can't get out at either end. I don't know what set me down in that Pawtucket horse-car, and I don't know how I ever left that store, or what became of it.' His eyes are practically normal and all his sensibilities (save for tardier response) about the same in hypnosis as in waking. I had hoped by suggestion, etc., to run the two personalities into one, and make the memories continuous, but no artifices would avail to accomplish this, and Mr. Bourne's skull to-day still covers two distinct personal selves.''

An examination of the case discloses a neuropathic family history and a psychopathic and neuropathic disposition in the patient. His maternal grandfather seemed to have suffered from senile dementia. ''His father became dissipated. The patient, when about thirty, suffered from a severe functional psychopathic attack, involving loss of sight, hearing and speaking. Since childhood he has been subject to ''blues,'' to melancholic attacks and has had ''fainting fits.''[1] It is clear that the equilibrium of the associated systems could be easily overthrown by some physical or psychic stimuli, even of medium intensity. Such a stimulus was sure to come some time or other; it came at last in the form of ''trouble back there.'' The patient's personality changed. He forgot the events of his former life, even his name; called himself Mr. Brown. His natural instincts, later acquirements and even habits did not change. He knew how to eat, drink, dress and take care of himself; he could speak, read and write, and could readily understand written and spoken language. He even retained his habit of church-going and making sermons. His sensibility did not change. The only profound change was in his memory and in his character. All the events of his former life were completely gone; he took up an occupation for which in his Bourne state he had a perfect horror, and he was described by the neighbors as ''taciturn.'' The

[1] See Proceedings of the Society of Psychical Research for 1891.

change in his personality was profound, but it still retained much of the old content. We must call here the reader's attention to the fact that once "at a prayer meeting the patient made what was considered by the hearers a good address, in the course of which he related an incident which he had witnessed in his natural state of Bourne."

The patient also presented hypnoidal states, inasmuch as the incident was not recognized by him as belonging to his past, the Bourne state. Two months later the patient woke up in his Bourne state and the whole intermediate period was totally erased from his memory; he did not know where he was; he could not recognize the people nor the surroundings; everything was strange to him. During hypnosis the patient passed into the Bourne state and all memory of the Brown state was gone.

The explanation from our stand-point is the same in this case as in the preceding ones. The stimulus "trouble" had disintegrated, temporarily, though, the synthetic moment of self-consciousness, and another less complex moment took possession of the patient, a moment which Professor James aptly characterizes as "a rather shrunken, dejected, and amnesic extract of Mr. Bourne himself." With the reorganization of the old systems, the new independent systems sunk into the subconscious. Periodicity in the alternation of consciousness was absent.

About three years later Professor James conceived the idea of revealing these dissociated systems by putting the patient into the hypnotic trance. Sure enough, they did emerge, but the Bourne personality could not be reached. He had heard of Ansel Bourne, "but did not know as he had ever met the man." "During the trance" or Brown personality the patient "looks old, the corners of his mouth are drawn down, his voice is slow and weak, and he sits screening his eyes and trying vainly to remember what lay before and after the two months of the Brown experience." When asked insistently for his experiences, the answer of

the Brown personality is highly interesting and remarkably characteristic of its mental state: "I'm all hedged in. I can't get out at either end. I don't know what set me down in that Pawtucket horse-car, and I don't know how I ever left that store, or what became of it."

It is certainly a pity that the patient was not observed in his secondary state, but the hypnotic trance seemed to have brought forth in a more or less perfect form the original Brown personality.

This case becomes still more interesting and instructive, because of the experiments that have been performed on it and also on account of the persistent attempts that have been made to run the two dissociated personalities into one. The experiments showed that the Brown personality, though complete in itself, knew nothing of the Bourne personality, and that when neither of them was present the state of the patient was that of indifferent aggregation of moment consciousness characteristic of hypnosis. "It is mixed up now," is the answer, or he makes no reply at all and simply sighs.

Professor James is right in summing up the case by the sentence, "Mr. Bourne's skull covers two distinct personalities." Two independent systems were formed within the mind of the patient. One belonged to his waking and one to his subconscious life. When one was removed, the other emerged. Usually the subconsciousness revealed in the hypnotic trance is, as we have pointed out, an indifferent aggregation of moments, any one of which can temporarily assume a leading part. Not so is it in the case of Mr. Bourne. In him the subconscious is under the lead of a more or less organized parasitic moment entirely dissociated from the waking synthetic moment. That is why hypnosis could not possibly effect a synthesis of the two dissociated moments. The waking state could give nothing else but Mr. Bourne's personality; the hypnotic could only give Mr. Brown's personality. By means of hypnotization,

therefore, the two dissociated moments could not possibly be unified in one synthesis. *Hypnosis alone is not sufficient to effect a synthesis of two dissociated moments.* Had Professor James, however, induced a frequent alternation of the two personalities and had he prolonged the *first period* of the intermediary state, the passing of the primary into the secondary state, so as to let Mr. Bourne catch a glimpse of Mr. Brown, he would probably have got better results. He would no doubt have got satisfactory results had he given to the patient while in the Brown state some strong toxic stimulus, and then induced alternation, prolonging the first period of the intermediary state.

CHAPTER XXI

ALTERNATING DOUBLE PERSONALITY

Thus far we have dealt with cases presenting only one attack of double consciousness. We turn now to cases where such attacks are periodical. We begin with a brief account of the well-known case of Felida X., reported by M. Azam:

The patient is of psychopathic disposition. She suffers from various nervous troubles, from uncertain pain and hemorrhage from the lungs. Under the influence of some strong stimulus, such as a violent emotion, the patient has a tendency to pass into a secondary state. This is preceded by some sort of aura, a feeling of throbbing pain in the temples. The patient then falls into a short but deep sleep, from which no stimuli, however strong or painful, can possibly rouse her. This is the hypnoleptic state, the intermediate condition that separates the primary from the secondary state. The hypnoleptic state lasted at first about ten minutes, but afterward became shorter, until it was reduced to but a few seconds.

The primary and secondary states differ widely. In the primary state the patient suffers from various illnesses of functional nature; she is depressed, morose, not communicative, has a decided eagerness for work and has no memory whatever of what has occurred in the secondary state. In the secondary state, on the contrary, she is gay, lively, haughty, confident, free from functional troubles, and has memory for both secondary and primary states. Her natural instincts, her acquirements and many of her habits remained unchanged in both states. The only changes were in character, in disposition, in memory and in the general organic sensibility.

In this case we meet the phenomena of mental alternation, a condition not found in the previous cases. This alternation covers a period of many years. At first the secondary state was but rare and of short duration, but in the course of time became more frequent, of longer duration, and at last became the patient's natural state. Thus the second condition, according to the account, at first occupied about a tenth part of her life; then it became equal to her normal life; then it filled almost her whole existence, the primary state appearing only at very short intervals. When the secondary state came to occupy most of the patient's life, it gradually changed as to mood and disposition, not presenting such a marked contrast to the primary state.

It is interesting to observe the fact that the patient also presented a third state. She fell asleep in the usual way and woke up, not in any of the two states, but in some peculiar state, the leading trait of which was great fright. In this state she knew no one but her husband. This psychic condition must have been some sort of hypnoidic state. That the patient did have hypnoidic states we can judge from the fact that "her slumber is often troubled by dreams and nightmares." It is a pity that M. Azam did not make a thorough investigation of the patient's dreams in her primary state, when all memory of the secondary state was absent. An investigation of such a nature would no doubt have revealed the presence of hypnoidic states, reproduction in the primary state of moments belonging to the secondary state.

Had M. Azam not permitted the hypnoleptic state to become shorter; had he, on the contrary, directed his endeavors to the prolongation of the hypnoleptic state and had he tried by means of psychological as well as physiological stimuli to bring about a more frequent alternation of the primary and secondary states, the poor woman would have been saved from the affliction of mental alternation. This was precisely the method followed in the Hanna case.

From the therapeutic stand-point alone the Hanna case will remain one of the most important cases in psychopathology. It was the first case in which the importance of the hypnoleptic state for therapeutic purposes was pointed out, and the possibility of scientific treatment and control in cases which until now were considered as outside the domain of therapeutics was clearly demonstrated.

To return, however, to our case in hand. We must draw the reader's attention to the highly significant fact that the primary state, though appearing sometimes after a strong, violent emotion or trouble, still invariably appeared during sleep. Not so is it with the change from the primary to the secondary state. In this latter change, the patient passed through the intermediary hypnoleptic state.

The interesting point here is the relation of the two states. While the secondary state could remember the experiences of the primary state, the latter had no memory of the secondary state. The case is somewhat complicated. For while there is dissociation in one state there is no such dissociation in the other state. The secondary seems to synthetize the primary, but not the reverse. If, however, we look at the case somewhat more closely, we find that the states are really dissociated. For although the patient in the secondary state knew of the events of the primary state, still she regarded that primary state as "the other," as "the attack," as "the crisis." She had always maintained that the state, whichever one she happened to be in when one spoke to her, was the normal one, which she called the rational state, in opposition to the other one, which she called "the crisis." In whichever state she was, she considered the remaining one the abnormal, the opposite, "the other" one. The difference only is that while in the secondary state she subjectively could recall "the other," in the primary state the subjective knowledge, the recollection of that "other" was totally lacking.

The secondary state represents here a complex moment

of consciousness with a rich content, so that while the memory-experiences of the primary state representing another moment consciousness with a narrower circle of psychic life are partly synthetized by the secondary moment, the content of the latter is not synthetized by the primary moment. The secondary moment, while synthetizing the content of the primary one, regards at the same time the primary moment as another, as distinct and separate from itself. The functioning constellations of neurons, having the secondary state as their concomitant, are able also to awaken in the constellations of neurons, having as concomitant the primary state, those neural conditions the correlatives of which are memory-experiences, and are transmitted as such by association-paths to the secondary constellation. The secondary moment then remembers that the experiences happened not within its own past, but within the past of the other, of the primary moment.[1]

[1] Dr. Prince maintains that a patient put into trance really manifests her full healthy normal self in which all the experiences are synthetized. This is true in some cases, while in others, such as Ansel Bourne and many similar cases, hypnosis brings out different persons with partial content. But even with fully synthetized content, there is still double personality, since the trance personality regards the life experience of the waking person as not belonging to its own life.

CHAPTER XXII

MANIFOLD PERSONALITY

To illustrate the varying nature of these alternations of consciousness, I may briefly summarize two English cases which have recently been reported. The first is of a girl of twelve, who was shown to the Clinical Society of London by Dr. Albert Wilson in January, 1896.[1] In this case there were no less than five different existences, including the normal, and the condition is related to hysterical somnolence, or, more accurately, to hystero-epilepsy. In 1895 the child had had severe influenza, followed by great headache, with intolerance of light and noise, probably meningitis, together with mania. After six weeks the headache disappeared and muscular symptoms of twitchings and opisthotonos developed with lividity and coma. She had many fits a day. In June the old symptoms disappeared and a fresh train of phenomena appeared. When in an apparently normal state, she would shake, turn a somersault, and enter a new and different mental state. Her memory for all events during health was quite gone; but she would remember in one such fit what had happened in a previous one. Thus was established a complete dual existence.

By education she learned the names of most things, but always employed baby pronunciation. She would write backward, and that quickly. When these attacks developed, she lost all power of walking or standing till about August, 1895. In the early stage she had fits of

[1] Brit. Med. Journal, February 1, 1896.

catalepsy, chiefly rigidity of the flexors. At times she had five or six fits a day, lasting a few minutes, and at her worst periods they lasted for days. She recovered from them quite suddenly, was never surprised at her surroundings, but very composed, and said she remembered nothing of what had occurred during the attack. The most striking feature was once when she had severe toothache during an attack. Dr. Wilson gave her chloroform and removed two teeth. On regaining consciousness, she recognized that the teeth and pain were gone. Her father hypnotized her and brought her to the normal state, when she made the discovery of the blood and the loss of the teeth, but she never remembered the previous pain or taking chloroform. There had been many variations, and she had four different existences besides the normal: (1) "Nib," for "Old Nick," when she had violent passions, and would bite or slide down the banisters; (2) "dreadful wicked thing," when everything was reversed, black being white, asleep being awake, the head being the foot, and so on; (3) "Allie," when she was amiable and good; (4) her ordinary fits, as already described. Other phenomena occasionally occurred. Thus, she was at times completely deaf and dumb, or at times she manifested loss of memory, so that she did not know those whom she ordinarily knew during the fits. Her general health and nutrition were good. Treatment had been rest and quiet and fresh air. Two years later, however, her condition remained the same.

The following case of apparently multiple personality in the insane, brought for study to my laboratory by Dr. Frost, may be of interest:[1]

Mary E. Vaughn, aged 22 (in 1891), single; born in Ohio; one cousin epileptic. Was admitted to Buffalo State Hospital July 27, 1891; in good bodily condition; weight 180 pounds. She had been an inmate of the State Hospital at Warren, Pa., for three years.

[1] The hospital notes were sent to me by Dr. Frost.

She was discharged from the Warren Hospital as cured of epilepsy with mental disturbance, and remained apparently well for five months, after which she suffered again from epileptic seizures, which were said to recur with marked regularity at intervals of two weeks, every alternate attack coinciding with a menstrual period. During the attacks she would pound her head and otherwise injure herself if not restrained; afterward had no recollection of anything that had taken place during the attacks.

The following note was furnished by her brother recently:

Ancestors were all healthy people, there being no knowledge of insanity or convulsions of any kind in the family. Her mother, however, had an uncontrollable temper, and during some of her attacks of temper would beat Mary and shut her out of doors, no matter what the weather was. Until about the age of thirteen she was perfectly healthy, but at that time caught a heavy cold. The first appearance of her convulsions was at night, and for several days previous she had been rather melancholy. She began by moaning in her sleep, and it was impossible to waken her, and she slept for several hours in that way. She was attended by a local physician at the time and was afterward taken to Warren, Pa., to a hospital, where she remained for a year or two. After her return home she took patent medicines and then went to the Buffalo State Hospital. Her brother does not believe that she expressed the idea that her personality was changed while at home, as he had never heard of it.

On the evening of her arrival at this hospital, she had a series of convulsions characterized by opisthotonos and without frothing at the mouth or biting of the tongue. These attacks recurred oftener than every two weeks—sometimes daily for several weeks—always attended by suicidal attempts and succeeded by a period of calm, during which she was childish and played with dolls and trinkets,

and was pleasant and easily managed. It was noticed that she had no recollection of the attack, but no mention of any symptom unusual in cases of epilepsy was made in her case until July, 1893, two years after her arrival at the hospital. At that time the following note was written: "Has had a series of convulsions and has been suicidal for a long time. Has been careless, abusive, very cross and irritable, entirely unlike her former self. She came to herself on awakening this morning. Has no recollection whatever of what has passed since about 11 o'clock, July 12th (fourteen days ago), the date of the first convulsion of this series. She asks questions about the arrival and departure of patients during this time; greets affectionately, as if just returned, a nurse who really returned three days ago, and whom she welcomed just as affectionately then as now. She is quiet and pleasant, joking, not suicidal, completely changed."

August 10, 1893.—"Again having convulsions."

May, 1894.—"Goes from a state of lucidity into a series of convulsions, followed by a period of mental obscuration with suicidal tendencies, which lasts several weeks, with great regularity. During these periods is cross and irritable and denies her identity."

August, 1894.—"Lucid periods of shorter duration. Had no recollection in one period of what had taken place, what she did or where she was, or in fact of who she was in the other period or condition. She is a typical illustration of double consciousness."

November, 1894.—"Suicidal after convulsions. Has no recollection of herself in a previous state and will not, in this condition, acknowledge her name. She continues to have occasional periods of frequent epileptic convulsions, when she loses her identity and imagines that an old woman is after her; hears her in the wall. At other times is good-natured, helpful, quite coherent."

There is nothing additional in the history until January, 1897, when it is noted that she suffers from incontinence of urine; being then in one of the convulsive periods. From that time until the present time this symptom has always recurred with the return of convulsions; not immediately, but after the convulsions have lasted some days.

The duration of the respective periods is not exactly stated prior to 1896. On September 3d of that year convulsions commenced and her abnormal state continued with convulsions until May 9, 1897, with, however, two lucid intervals lasting two and three hours each. After "coming to herself," on this occasion, she still had occasional convulsions and was depressed and suicidal for several weeks, the first observation of this tendency in her normal personality. From July 1st to October, 1897, she was quite well, and during the summer went home for a month, as she had done several times before for shorter visits.

On the 5th of October she began to have convulsions; at first only a few; they became frequent, and after a few days she was again in her second or abnormal state, which lasted with all the old symptoms until the middle of February, 1898. She was then well until June 4th, though she had two isolated convulsions during April. She had many seizures during June, sometimes ten or twelve during the day, gradually decreasing to one daily, and then ceasing entirely at the end of the month.

During this time she was occasionally depressed, and was not nearly so suicidal as formerly, though her abnormal personality was as usual. On July 17, 1898, it is noted that she "has been herself at short intervals for several days; no convulsions since the first of the month." From this date to the 26th she had one or two convulsions daily and was alternately in the two personalities. Then she was well all the time until September 5th, when she had two convulsions and passed into her abnormal state, continuing in it

until May 15, 1899, with convulsions almost daily, sometimes one only—sometimes two or three, and occasionally ten or twelve. During this period it is noted that "her condition this time is different from any previous attack. She is not suicidal, but remains perfectly cheerful and works actively in the ward. She shows the change of personality so often noted previously; calls the nurse and doctors by the nicknames which she always gives them when she is not herself, but her normal personality does not seem to be completely banished as heretofore."

Note of May 6, 1899, reads:

"Patient has lost in weight from 240 to 165 pounds; remains in a clouded mental state, with very frequent but light epileptiform seizures, which are without aura; and in that, as well as in their character, they differ from the attacks which she has usually had. Has the same delusions about the old woman, which always characterized her abnormal state and always speaks of herself as 'we' instead of 'I,' but she appreciates in a measure her connection with the other personality, for she feels the death of her father and brother, which occurred during this period and which in previous attacks she would (probably) not have noticed."

May 15, 1899.—"Herself; quiet, natural, composed; remembers going to Collins, but not returning. Says she was well a day or two while there and remembers that. Remembers her father's death, but not her brother's, which was more recent. Feels well; no headache, no giddiness, but is frightened at the changes of personality. The changes have occurred several times daily for several days, lasting from ten to twenty minutes."

July 18, 1899.—"Returned to-day from a month's visit at home. Has been quite well mentally since the middle of May. Gained nine pounds while at home; was well all the time except for indigestion, which has troubled her a good deal from time to time. At times she can take no food at

all, and has to live for a prolonged period on a little malted milk."

During August, 1898, in the interval between the attack just referred to and the one preceding it, she suffered from indigestion, requiring to be confined to a diet of malted milk. This has persisted more or less ever since. She has always menstruated irregularly and suffered from neuralgic dysmenorrhœa.

She remained well from May 15 to July 26, 1899, when she had eight convulsions. After the first few seizures she became depressed, restless and suicidal, and before the end of the day had passed into her abnormal state, giving the old nicknames to those about her, saying that the "old woman" was behind her, giving her hypodermics, etc. The next day she had twenty seizures, then eighteen, twenty-four, sixteen, ten, eight, etc., until by the 1st of September she was having only one or two daily.

September 17th was well in the morning for ten minutes, and in the evening for five minutes, and later for twenty minutes; then, for two or three weeks, was alternately in one and the other personality, the normal gradually superseding the abnormal, until October 7th. From that date until November 7th she was quite well, though she had two convulsions during the interval. Had one convulsion November 7th and twelve on the 8th. Was "her other self" for an hour in the afternoon of the 8th, and again from 3 A.M. of the 9th, having twenty-one convulsions on the 9th. Was normal about twenty minutes daily from the 10th to the 15th.

Since then has been continuously in her abnormal mental state and has had usually two convulsions daily, sometimes four or five.

November 16, 1899.—Says that "we are not like what we were once; we don't know what is the matter, but we are not like anyone else." Wants to go home while in her abnormal condition (as at present), instead of when she

"is lost," in order that she may enjoy the visit and have some recollection of it, and not be dependent upon what others tell her altogether. Has some convulsions now, one to three or four daily. Improved physically.

December 14, 1899.—This morning she is rather excited; says that something is going to happen to her; that the world is coming to an end; that she is going to die, etc. The reason for this is that last evening, just after a convulsion more severe than usual, she remembered being at home last summer. She was so startled and puzzled by this sudden glimpse of her other life that she could not sleep at all during the night. This morning the recollection persists and is quite clear as to details.

She does not recollect going from here, but she remembers coming back. She is still haunted by the "old woman" and persists in the other peculiarities characterizing the abnormal state. She will, however, give her acquaintances their correct names, saying "that is what they call themselves." Says she will not call anyone a liar again, as she has heretofore, when told of her trips home and other instances of her other life. Says this perception which she has to-day has confounded her so that she does not know the true from the false.

February 1, 1900.—This patient was sent to me in charge of a nurse, and was in daily attendance there under my observation and that of Dr. Frost for three weeks, during which time her condition was carefully studied and numerous graphic records made, and experiments performed. She improved quite noticeably in mental condition during her stay there, as a result of changed surroundings and the interest which she took in seeing new sights. She no longer suffered from indigestion, had fewer convulsions and very light ones, none in the daytime, and she gained in flesh and took on a better color; was more cheerful and lost the anxious, worried look which she had at first.

The following are some of the notes taken while she was under our care:

January 8th.—Patient well nourished, presenting no physical anomalies. Temperature normal; pulse 90. Pupillary reactions normal; tendon reflexes normal, kinæsthetic sense normal. In fact, patient gave normal response to every test, which included those of sensation, heat and cold, and pain. Time localization poor. She does not know the date or anything else relating to passage of time. She is very suspicious; is afraid of instruments. In a long conversation she states in reply to numerous questions that she has six brothers living and two dead; says that she herself feels 53 or 54 years old, but does not know her true age; that her name has changed so often that she does not know what it is, but "they call her Mary." Cannot write. Can read a little. Went to school, but not very long. Sometimes reads the papers; crochets and sews usually. Would like to know how to read better than she does; is able to read letters from home, but can read only writing which is familiar.

Q. Do you dream of your real name and of childhood's happenings? A. Sometimes; not very often.

Q. When did you leave home? A. Don't know.

Q. Why did you leave? A. Home was broken up.

Q. Have you any special pains or physical disorders?

She replied "Yes," but did not give description.

Q. Are you afraid? A. Yes; afraid of the old woman, and we get scared when we get lost so much.

Q. How long have you been more than one person? A. Since a little while after we came to Buffalo Hospital.

Q. How often do you feel that you are more than one person? A. We feel so all the time.

Q. Do you like the feeling? A. No; we would like to be as we were once.

She says that the other persons are in herself; that she hears the old woman talking to her all the time; cannot

tell what the old woman says; the old woman used to be her mother; guesses she is yet; hears her all the time when waking and sometimes dreams of her; the old woman tells her only unpleasant things. Asked if she always felt like two or more persons, she says that she did not always feel so; formerly felt different. Is afraid to tell what the old woman says for fear she will harm her; the old woman forbids her telling. Asked how the old woman could talk to her when she (her mother) is absent, says that she throws her voice here. Patient recognizes that it is impossible that the old woman should really be here. Says that the old woman's voice is distinct, but not loud. She formerly heard many voices but now only one. The old woman's age is about 53. "We are not like what we used to be. Nothing looks the same. Nothing looks nice any more." Explains that she says "we" instead of "I" because she thinks she must be more than one person, else she could not change as she does. She says that she used to walk the floor all the time to keep her feet from getting cramped and that she now has no numbness or queer sensations of any sort. Has been dead five times and was a different person each time upon coming to life. Has been everything that is wicked. Was Jesse James for a long time, and robbed and stole. Jesse James died and she was then Mary Vaughn. She is not Mary Vaughn now. Afterward she was Jennie Longnecker; did nothing wicked as Jennie Longnecker. Jennie Longnecker died and she was then Mike Muckey, an Irishman, who drank and was wicked and finally died in prison from drinking. Was not dead long at a time. Thinks that she is not really related to her brothers and sisters, because of these previous existences, though at times she believes them to be her brothers and sisters.

Either the patient or the examiner became confused about the succession of the personalities mentioned above. She explained afterward that their order was as follows:

First—The Irishman, Mike Muckey, 100 years ago.

Second—Jennie Longnecker.

Third—Jesse James.

Fourth—Mary Vaughn.

Fifth—The present state, in which she does not admit that she is Mary Vaughn.

January 11th. Had one slight convulsion yesterday afternoon and three during the night. Had nightmare so badly that the nurse had to walk her about the room to awaken her. In the nightmare she thought that the "old woman" was after her with a stick and she was running to catch up with her brother, whom she saw ahead. He would not wait for her. In her sleep she was moving her limbs vigorously, as if in the act of running. While pneumographic tracings are taken, patient constantly makes whispering movements with lips and tongue, of which she is apparently unconscious. Always denies it when spoken to about it. Says that the old woman constantly talks to her. It may be that the hallucination of hearing is connected with this unconscious phonation. Told to count mentally, she makes lip movements for each number, and when told to *think* merely of the numbers as called off by the experimenter, her lips move in the same way. An attempt was made to hypnotize her. She resists the suggestion of sleep; has told her nurse that she will fight against the desire of sleep and repeats that statement now. Says she would be *afraid* to go to sleep in this room. When asked her thoughts, she says she thinks always of the old woman, wishing she (the old woman) was like other people. This has been her main thought most of her life. The old woman is her mother; mother never liked her or any of the other children. Mary does not love her mother, but was devoted to her father. Mother treated her other children badly, but Mary the worst. Supposes mother must have *hated* her. Mother has promised a hundred times to be good to her, but Mary does not believe her. Hears the old

woman's voice "in her ears"; just the same with both ears closed. Has had earache and does now at times have earache in both ears very badly. The voice is worse during attack of earache. The voice is always more annoying when she feels badly from *any* cause. Dreams often of the old woman. Dreams of things which are reproductions of actual past events, of being at home with mother and of her mother treating her badly, as was actually the case. Also sees things in dreams which are not identified as actual occurrences in the past.

Q. Does the old woman give you pain? A. No; only talks all the time. Has roaring in the ears sometimes.

January 12th.—Was put to sleep by suggestion after she had gone to bed in her own room. Went to sleep very quietly in about three or four minutes and slept soundly, though with sudden jerks and starts. Was awakened after fifteen minutes and said she had been dreaming of the old woman. She slept for fifteen minutes in the afternoon and dreamed that she was falling down between two houses and called to her brother George to help her. The nurse heard her call out "George" in her sleep. (George is a deceased brother.) She went to sleep again after I left the room and slept *without* any starts or twitchings, but had five light convulsions without awaking. The convulsions were general, but only momentary, and scarcely attracted her nurse's attention. She bites the tongue, though, even in these slight attacks.

She went to sleep readily to-day under suggestion and slept quite soundly, but we could not elicit any replies from her, and questioning awakened her with a start. Said she had been asleep for a minute and that she heard me talking to her, but was not conscious of what I was saying. Tried again, but could not induce sleep.

January 13th.—Visited her at her room at 7.30 last evening and put her to sleep without difficulty, and succeeded in eliciting a few replies from her while in the

sleeping state, but the experiment was not very satisfactory, as she soon awoke when questioned sharply. She went to sleep again naturally about 9.30 and slept until about 12; during that time she cried in her sleep while dreaming; did not awake at that time, but later when she did wake she told the nurse that she had dreamed the old woman was tearing up a picture which she (Mary) treasured. She *saw* and *heard* her; her voice is about the same in dream as it is when heard during the day. She did not sleep after midnight; was restless and nervous; had two convulsions, at 1 and 1.10; could not go to sleep, though she tried counting, etc. The nurse put her to sleep by rubbing her forehead, but she slept only about fifteen minutes.

January 16th.—Was examined by aurist yesterday, and her ears found perfectly normal; hearing acute; bone and air conduction normal; drum membranes normal. Posterior nares and throat quite normal. No source of irritation found which might give rise to the auditory hallucinations. Her perception of the lapse of time is not perfectly good. A certain period seems to her longer than it really is.

She was "lost" for a while this morning. She says that being "lost" is different now from what it formerly was. She does not forget what has preceded nor feels as if just awakened from sleep. Merely "feels bad," and wants to cry. The hallucinations always disappear during the time she is "lost."

Attempts were made to have her quickly formulate a sentence containing a given word. It is difficult for her to *think* of *anything* to say, though she understands what is meant. A word was then given and she was asked to give a *string* of words at random.

This was also very slow.

Afraid.—No answer. Says no words come into her head. Finally said "afraid of old woman."

Bad.—"Fighting is bad. Drinking is bad."

Beating.—"Beating is bad."

Kicking.—No answer. Says no thoughts arise; that she cannot think of anything.

Painful.—No answer.

Hurts.—"Kicking, burning, biting, striking."

Hitting.—"Kicking, pounding."

Who is doing the kicking, etc.?—"People."

What kind of people?—"Ugly people. Mad or drunk."

Do you know of any drunken people?—"The old woman used to drink and others around her drank."

Who is she?—"Our mother."

Association of ideas when ultimately stimulated refers to the central idea of the old woman. Ideation is very slow, being inhibited by the said idea.

Talking.—"You are talking. Old woman is talking. We are talking."

Hearing.—"We hear you. We hear the old woman."

Running away.—"We runned away from the old woman lots of times."

Striking.—"She striked us lots of times."

Frighten.—"She scared us lots of times."

Love.—"We loved our father and our brothers."

Don't love.—"Don't love the old woman; likes her well enough; don't love her like we ought to; love her as much as she allows us to, though."

Counting after it has been kept up for a while will stop the hallucination. She counts to herself to go to sleep. Also when doing crocheting, etc., involving counting, the voice is not so loud and persistent.

Listening to reading distracts attention from the voice, too, but not entirely. *Talking* has the same effect, but not so marked as listening. *Watching* her nurse and trying to learn a new stitch distracts her attention from the voice, but not entirely. Any kind of work gives some relief. Any ordinary conversation will distract her to some extent. Hears the voice most when doing nothing and just think-

ing about the old woman. Mere distraction of attention, such as watching something or doing something involving thinking, is not so effective as employment requiring talking or counting in addition to watching and thinking. Hears the voice just the same with the tongue protruded or with tongue caught between the teeth. During such experiments, however, the tongue constantly moves spasmodically; twitches. Dreams of the old woman almost every night; *rarely* has a dream without the old woman; *never* a dream without some member of the family being in it.

January 17th.—Put her to sleep last evening at her room; she was tired and sleepy at the time; went to sleep readily and slept soundly, but did not go into real hypnosis —no catalepsy induced. She muttered at times in reply to questions—occasionally answered questions directly without awakening. She said "Jim" was talking to her; that she had also a brother named "Will"; that there are six in their family; sisters named Ivy and Alice. Would like to go home and work. These remarks all in reply to questions frequently and insistently repeated. A tendency to wake up when questioned sharply enough to elicit an answer, but if questions were stopped for a moment she would go more soundly to sleep again; called out ("Jim, did she lock you in there?"). Awakened after half an hour. She said she had been asleep and dreamed of the old woman and her brothers and sisters. Had a conversation with them at home. Did not know of my having talked to her. Attempted hypnosis at 11 A.M. Not successful. Whispering movements very marked while quiet and trying to sleep. Repeats the story of her several reincarnations into Jesse James, Jennie Longnecker, and Mike Muckey, all of which were previous to her birth as Mary Vaughn. Then Mary Vaughn died before she went to Buffalo. She knows she must have died because she could not otherwise be so changed as she is. She is called Mary Vaughn now, but

does not feel like Mary Vaughn. Does not even believe that during the times when she is "well" and goes home she is really Mary Vaughn, the same Mary Vaughn as before, although at those times she does think so. Does not hear the old woman at all when she is "well." When "well" and at home she is not really cheerful and like other people, but prefers to stay quiet.

Jesse James lived about 35 years.

Jennie Longnecker, about 45 years.

Mike Muckey, about 60 years.

Mary Vaughn, about 17 or 18 years.

It seems about fifty years, although she has been there about seven or eight years. Altogether it seems to her that it means about 1,000 years. When asked how this can be since the figures do not make 1,000 years, she answered she was mixed up in the figures in believing otherwise.

Mike Muckey died from drinking himself to death; lived in Ireland; was married; wife, Annie McCarthy; had ten children. Does not remember about the death of Jesse James; also could not remember about the death of Mary Vaughn. Describes aura as before, and says besides that she sees little silver stars, and everything goes around and sometimes it gets dark. This only with eyes open; has to close eyes for relief. Never dreams about Mike, Jesse or Jennie, and never thinks about them now. Says that these memories of Mike and Jesse and Jennie came to her first after she came to Buffalo. She knew nothing about them before that. Nurse says she told the same story in all its details six years ago to her knowledge. Mike had red hair and whiskers; does not remember anyone who looks like him. Knew a girl named Jennie Longnecker, and liked her very well. Later said she did know a man named Mike Muckey, who lived at Portville; does not know whether he was married or not. Knew a woman in Olean, a great friend of the old woman, named Annie McCarthy. She and the old woman and a man named Holmes used to drink

together, and Mary "rushed the growler." (Holmes looked much like Mike.)

On January 18, 1900, patient was more sure of being Mary Vaughn than being any of the other personalities. Has had dreams in which the old woman figures largely. Patient is now fully aware of the primary states. In the primary state, however, patient does not know the other personalities. Patient thinks that she is now more right about things than the other state with the many personalities.

Patient continues to have the auditory hallucinations of the old woman, her mother. When asked how fast the old woman talks, patient answered that the old woman kept on talking as fast as she herself did. The patient keeps on whispering to herself. The movements of her lips and larynx could be distinctly perceived. They ceased when patient's attention was fully absorbed in some difficult task; then she heard no voice of the old woman. The movements were started again when patient was slightly distracted, and when left to herself for a few minutes low sounds of whispering could be clearly heard. Occasionally she even spoke out aloud. When her attention was called to the fact of her talking, and she was told what she said, she was surprised; she did not talk; it was the old woman who kept on talking to her.

This case presents phenomena of multiple personality having their origin rather in delusional states. Multiple personality, however, can be observed best in cases uncomplicated with insanity. In such cases each moment-consciousness has its own separate memory not commingling the stream of its recollected experiences with those belonging to the other moments. These different moments can be artificially evoked in hypnosis by indirect suggestion, such as by the action of the different metals applied to different places of the patient's body, or they may be called out to function by direct hypnotic or post-hypnotic suggestion.

When the patient, however, is naturally passing from one state to another there is present a transitory state, the attack, the hypnoleptic state. The moments differ greatly in character, in disposition and inclination; still much of psychic content is common to all of them.

The case recently described by Dr. Gilbert may be regarded as falling under the category of multiple personality, although it is quite probable that they are forms of hypnotic states. The patient is of a psychopathic disposition. The breaking up of personality was occasioned by an injury to the cerebro-spinal system. The transition from the upper personal consciousness to the subconsciousness, in which the hypnoidic personalities are buried, is through an intermediary sleeping or hypnoleptic state, while the transition of one hypnoidic personality to another is by slow gradations, one imperceptibly passing into the other, since they are all subconscious. The cases reported by Dr. Prince, Flournoy, Professor Hyslop and others belong to the same type.

I quote from Dr. Gilbert's account:

"*Family History.*—Father living and well. Not much known of him or other relatives. Mother died when three years old. Cause unknown. One brother living. None dead.

"*Personal History.*—Age, twenty-two years. Never ill until the present accident. No liquor or drug habit.

"*History of Present Illness.*—Fell from a barge onto a log in the water eight to ten feet below. Struck head on left occipital protuberance. Stunned for a short time. Rallied and crawled up on the logs. Head burned like fire all over. Walked like a drunken man. He was taken ashore and started to town. Walked part of the way; on street-car the balance of the way. After boarding the car and riding a short distance nothing more was remembered till in the hospital about three weeks later. When taken by the ambulance he was apparently rational, but exhausted.

On waking in the morning he would chase rats in the bed. On second day after entrance to the hospital he rose from bed, said he felt all right, and asked to be discharged. He was apparently well, and the discharge was granted. His friends noticed he was not normal and brought him back the same day. He left the hospital thus three times, apparently normal, but he remembers going out only the last time. All events previous to that are a blank since boarding a street-car after the barge accident. During his stay in the hospital in the early part of his sickness he would have spells of semi-delirium. Peevish and troublesome at times, generally quiet and orderly. There were gathered a few facts in regard to things he did and where he went during his first two trips out of the hospital, but he could not recall them after they were related to him. Throwing the head backward caused things to turn black before his eyes. Unusual movements affected his eyes. At first almost continuous pain over the eyes and in the head. Extremely nervous at times; so much so that pricking his ear for blood 'set him on nettles.'

"The patient's life being largely a blank since the accident, and inasmuch as he had unwittingly collected and signed a receipt for his wages, and not knowing what else of importance he may have done, with the patient's consent I hypnotized him to ascertain his actions during the period which was a blank to him. Hypnosis was induced slowly, but successfully in about one-half hour. While in the hypnotic state, in muffled voice, in response to questions, he gave in detail his life during the time subsequent to the accident. Subsequent investigation verified his statements in every detail so far as memory could serve, for no notes were taken, inasmuch as multiple, or even double personality was not suspected at this time. To close the hypnosis I suggested that he would awake when I counted five, having previously suggested that at the end of the counting he would wake and feel perfectly well in every regard.

To our surprise he awoke with a start, the very picture of fright, trembled like a leaf, demanded where he was, knew neither Dr. Cobb nor myself and, all in all, was a picture of mental distress. The patient was quieted, and on questioning him it developed that we had before us a case of double personality. He gave his age as eighteen years, never had been in Portland, spoke of events which he said took place 'yesterday,' and on questioning it was found that he thought it was September, 1898. All time and events since then were an utter blank. Subsequent developments proved that this date was 1899 instead of 1898. Previous to 1899 he had a lapse into another personality which lasted about a year. Hence the dropping of a year. Mere mistake in dates, however, may account for the mistake without reference to the lapse previous. He said that 'yesterday' (*i.e.,* Friday, September, 1898) he had a fight with his father in Glenrock, Wyo., and on being told that he was in Portland he asked whether it was Portland, Ore., or Portland, Me. The patient being somewhat disturbed in mind he was put in the ward to quiet down and get acquainted with his new surroundings. He knew none of his companions in the ward and had to be shown his bed, hat, and belongings in general—in short, he was a stranger in a strange land. The case throughout presented many queer and interesting data, which must, of necessity, be omitted in this presentation of it.

"At 4 P.M. on the same day (April 2d) the following history was taken from him, told in a perfectly clear-headed and intelligent way:

"Born December 15, 1878 or '79—not sure which. Born at Nemeha City, Neb. Mother died when he was three years old. One brother, one half-sister, one step-sister, father, two grandfathers, two grandmothers, and a step-mother, giving their names and addresses. Moved to Nebraska City shortly after birth and then to St. Paul, Neb. Ran away from home when fourteen years old and went

to relatives on mother's side. Omitting details in this writing, he went to Bloomington, Omaha, Ashland, and finally to Lincoln, Neb., and enlisted for the war with Spain. Went as far as Chickamauga and took sick with a fever of some kind. Cannot remember how he got back to Nebraska, but the first he could remember he was working in Oxford, Neb. During this lapse, I learned subsequently, he had been hunted for desertion—the desertion, however, not being true desertion, for he changed personalities in camp and left, not knowing that he belonged to the army. Omitting details again, he went to Oxford, Mascot, Holdredge, and Glenrock. While here his father and step-mother quarrelled, and in his attempt to interfere he and his father quarrelled. During the quarrel, it seemed to him, his father hit him on the head with something. That was the last he could remember until he woke up here in Portland. There was no headache in this personality. Perfectly well in every way. Refused to take medicine because he said it was nonsense for a well man to take medicine. He never saw but one steamboat in his life, and that was on the Missouri River. It must be remembered that the patient has lived in Portland since last August. On questioning he knew nothing of Portland, nothing of his house which he and a chum had built, and nothing of the chum or anything related to him. Although he had never seen a steamboat except one on the Missouri River, in another self he had fired on the steamer Columbia between San Francisco and Portland and had become very seasick. Furthermore, numbers of river steamers and ocean liners are to be seen daily in the Portland harbor on the very beach of which he has lived since August. Absolutely no clew could be hit upon by which to connect him with the life he lived in Portland. Letters on his person were strange to him, and their contents worried him.

"The next day, April 3d, with his consent, he was hypnotized, so as to be thrown into his former self again

in order to ascertain the events of his life since September, 1899. Hypnosis was again slowly induced. When completely under the hypnotic influence no answers could be elicited from him at all. By shaking him after suggesting his Portland life to him he roused, but in a delirious state, raving with headache, complained of two red men who twisted his head and begged to be taken back to the hospital, supposing he was down-town. This was evidently the stage in which he was at times after the accident on the barge. No persuasion could quiet him, and to satisfy him we told him we would take him back to the hospital. On opening the door into the corridor leading to the ward, his surprise and alarm at finding himself in a strange building threw him into a frenzy of terror, and all we could do was to take him back to the dressing-room where we had been. Here he quieted down and went to sleep on the dressing-table. After about ten minutes I cleared my throat. He started up in a fright and began chasing rats on the bed. Again I quieted him. After sleeping a few minutes, without perceptible stimulus he started up again, but on seeing me, said in a perfectly calm way, 'Where is Dr. Cobb? Did I tell you what I did since the accident on the barge?' (Dr. Cobb had been unavoidably called away after he fell asleep on the table. With the exception of these ten or fifteen minutes there were always from one to six witnesses besides myself.) He was back again in the self in which he was before the accident on the barge and knew absolutely nothing of the twenty-four hours which he had just passed in a different personality. No clew could be hit upon by which to connect him with it. He thought it was April 2d, and on being told it was April 3d, was somewhat surprised and supposed we had kept him hypnotized for twenty-four hours. The following history was then taken, the man apparently normal except that the old headache was back again. His life was traced backward and found to lead from Portland to San Francisco, Denver, Cheyenne, Wyo.;

Edgemont, S. D.; Chadron, Neb., and finally to Glenrock, Wyo. Here he said his father and he had some sort of trouble. Could not tell how the trouble arose. His father threatened to shoot him and he ran away.

"Omitting again the many details which are confirmatory and interesting, but not absolutely necessary to the narration of the case, he went to Chadron, Edgemont, Cheyenne, Denver, San Francisco, and finally to Portland. It subsequently developed that he also spent a period of time belonging to this life when about sixteen years old, *i.e.*, previous to the Glenrock quarrel with his father. In this personality he knew nothing of coal-mines, though he had been working in a coal-mine in his other personality for two weeks previous to the quarrel with his father. Again repeated attempts were made to connect the two lives by going over, in detail, the experiences as related by him in the two respectively, but no connection could be made between them. By putting together the two histories there still remained large gaps which were unfilled by the experiences related while in the two respective personalities.

"The gap from Chickamauga to Oxford and numerous others of less importance remaining unfilled and having received confirmatory evidence from answers to letters of inquiry sent out, I felt sure of a third personality and hypnotized him, April 24th, to throw him into said suspected personality. He was successfully thrown into it, and when he was aroused from hypnosis into the third state he was again a stranger to us and his surroundings. Acting on the difficulty experienced in gaining his confidence when he awakened the first time in a strange personality, I had written letters at that time explaining his condition and also a note which he signed to act as corroborative evidence of our friendliness, should he in the future wake and be a stranger to us. These letters were carried continually in his pocket, and were valuable aids in keeping the man's confidence in the different personalities. Some time was

thus spent in reassuring him, after which the following history was taken, unessential details being omitted in this report.

"When questioned in regard to Chickamauga and his experience there, he said he did not belong to the army there, but there were a great many soldiers all over the fields. He said, 'I was awfully sick and I haven't got over it yet.' In this personality he suffered continuously with pain in his head and abdomen. He was a typical tramp throughout, beating his way on trains, and working only enough to support life when it could not be done otherwise. He described in minute detail his wanderings through Chattanooga, Nashville, Green Brier, and Springfield, Tenn.; Henderson, Ky.; Evansville, Ind.; Carmi, Ill.; St. Louis, Jefferson City, Kansas City, Liberty, Red Cloud, and Oxford, having isolated and disconnected experiences in Cheyenne, San Francisco, and Portland. Here again repeated attempts failed to connect him with either of the other two lives. Frequently, in relating his experiences in the three different lives, he would come to a certain point in the narration, stop and say, 'I can't remember what took place then; the next I remember I woke up at such and such a place.' In narrating the experiences of a different life he would pick up the interval which he forgot in the other life and carry you to the point where he said he 'woke up,' and then say, 'I can't remember what took place; then, the next I remember I woke up at such and such a place.' Thus the story of each life contained numerous unfilled gaps which would be accurately filled in by experiences in another life.

"By taking the three lives and writing the stories as they dropped and picked each other up, thus filling up the gaps of each, I was able to fill out almost completely his entire life from 1879 to 1902. There still remained a number of gaps, indicated by the stars in the schedule below, which I have been unable to fill out. Thinking

that perhaps these gaps might be filled in by getting a still more complete history of the three lives, on April 26th, he was thrown by hypnotism into each of the three lives successively and questioned closely in regard to the lapses without avail. The histories given were not related by him while hypnotized. Hypnotism was used merely to accomplish the transfer from one personality to another, and the history was then taken during full consciousness in the ensuing personality.

"Once of his own accord and twice by hypnosis he passed into a state which could not be connected with the other three and in which he was in a state of semi-delirium. The subject became impatient and resented the frequent hypnotizing, and so it was decided to attempt by suggestion during the hypnotic state, accompanied by repeated consecutive narration of the events of his different lives to unite them into a unitary consciousness. The attempt was made April 28th, and proved gratifyingly successful. For a day or two he was still unable to recall a short period immediately following his lapse at Chickamauga, but later that came to him with full vividness. On April 30th, after having been hypnotized and the suggestion made that he would remember even the events comprising the gaps as yet unfilled, he was able to fill in the gap preceding the waking on the bluffs above Kansas City and the one preceding his waking in Liberty. The other gaps starred, still remain a blank to him. With these exceptions he now tells a story of his life so continuous that he himself cannot tell where the breaks in the continuity used to be. On being told that a short time ago he did not know many of the things he was now reciting he answered, 'Yes, I did, I always knew those things.' It is only when he recalls the events of the past month that he realizes there has been any change in him.

"Immediately before uniting the three personalities the following chronological tabulation of his experiences and

changes of personality was made out and used as a basis for suggestion by which to unite the three selves. The stars indicate the gaps existing just previous to the time the three personalities were united into a unitary consciousness. These gaps have been partially and tentatively filled and classified in a manner to be explained below. The dates mentioned have been verified by correspondence. The different personalities will be designated by X1, X2, and X3:

X1. Nemeha City, born December 15, 1879; Nebraska City, six years old; St. Paul, Neb., nine years old; Crawford, Neb., fifteen years old. Changed in the depot to

X2. At Crawford, April, 1896; Edgemont, S. D.; New Castle, Wyo. On way to Cambria, changed to

X1. Cambria, Wyo.; Crawford, Neb.; Havensville, Kan.; August, 1896; Topeka, N. Topeka, Holton, Havensville, Kan.; Nemeha City, Neb.; White Cloud, Bloomington, August 12, 1897. Omaha, Ashland, Lincoln, Neb., May, 1898; Chickamauga. Changed while asleep under a tree to

X3. At Chickamauga, June 3, 1898. Chattanooga, Nashville, Green Brier, Springfield, Tenn.; Henderson, Ky.; Evansville, Ind.; Carmi, Ill.; St. Louis, Jefferson City, California, Missouri. On train going toward Kansas City changed to

**a. (Probably X1; see below.)

X3. "Woke up" on the bluffs above Kansas City in the weeds. Crossed Kansas River. On freight changed to

**b. (Probably X1; see below.)

X3. "Woke up" in Liberty, Neb. To his surprise he had money in his pocket. Bought ticket to Red Cloud. On train changed to

**c. (Probably X2; see below.)

X3. "Woke up" in a shock of oats near Oxford, Neb., fall of 1898.

X { X1 Oxford, Mascot, April 18, 1899, Holdredge, Neb. (Vague experiences recalled at these places in all three personalities. Most accurate and detailed account was given by X3. X2 only knew that he had been there.)

X1. Holdredge, Neb.; Glenrock, Wyo. Changed to

X2. At Glenrock, September, 1899; Chadron, Neb.; Edgemont, S. D., February 5 to April 12, 1900. Alliance, Sidney, Cheyenne, Wyo., June, 1900. Changed to

X3. In Cheyenne. Bought ticket to Denver. In Denver changed to

**d. (See below.)

X2. "Woke up" on Larmour Street, Denver. San Francisco. In barracks asleep and changed to

X3. Left the barracks and went out into a big city. Changed to

X2. In the wholesale part of San Francisco, Cal. Oakland. On train and changed to

**e. (Probably X3; see below.)

X2. "Woke up" in Salvation Army Hall in Oakland, San Francisco. Portland, August, 1902. Changed to

X3. After the barge accident, February 20, 1902. In hospital three weeks. Changed to

X2. Hypnotized April 1st, and changed to

X1. For twenty-four hours. Hypnotized April 3d, and changed to

X3. Slept and changed to

X2. Till April 14th. On way from hospital to my office changed to

X3. Took ferry to Albina. Changed to

X2. At Albina. Hypnotized April 24th, and changed to

X3. Slept and woke from X3 to

X2. Hypnotized April 26th, and changed to

X1. History taken. Hypnotized, and changed into

X3. History taken, hypnotized, and changed to

X2. Hypnotized April 28th and X1, X2, and X3

"There were other very brief lapses, judging from many incidents narrated. Several such lapses occurred probably at San Francisco and here in Portland. The lapses **a, **b, and **d he was able to fill in after the uniting of his three lives. In **a he went to Kansas City, climbed the bluffs and went to sleep in the weeds. This was likely X1, inasmuch as he started in the direction of his old home, and in X2 he knew nothing of his people at this time. In **b, as filled in by his united self, he went to Topeka, Holton, and Havensville. Here his people would have nothing to do with him, and he went to Summerville and then worked near Liberty for some time. This must have been done when X1, for it is only as X1 that he knew anything of his people at Havensville. The lapse **c must have been in X2, because when in this personality previous to uniting the three he said he had been in Red Cloud, but could not remember anything about it. In lapse **d he went to Denver and loafed around for about a week. The lapses **e and **f are still in obscurity, but assuming that there are only three personalities in the case these lapses must have been spent in X3, because he changed to them from X2 and X1, knew absolutely nothing of any time between September, 1899, and April, 1902.

"Evidence seems to point to the conclusion that whatever personality or personalities he was in while at Oxford, Mascot, and Holdredge, there was at times more or less knowledge of all three selves at those places. In no single personality could any specific detailed account of his stay at Oxford and Mascot be given, though in all personalities he knew that he had been there. X3 gave the most details of any at these places. Either there was a certain amount of interfusion of the three personalities at these places, or else he had frequent changes in Oxford and Mascot. Subsequent correspondence with his acquaintances at Oxford substantiates the former view. Furthermore, he says that while he was asleep in the shock

of oats near Oxford he had a very peculiar dream of having been in Red Cloud, etc. It is highly probable that this dream was not a dream, but the real experiences of the preceding lapse, probably filled by X2 or a modified X3. This vague interfusion of the selves or modification of a particular self may account for all the lapses and peculiarities in X3 from Chickamauga. Though there is no absolute proof, the data at hand leave one in the conviction that at Oxford, Mascot, Holdredge, and probably Glenrock there was a partial, if not complete, fusion of the experiences of the three lives, which was confusing to him then as well as to us now. His acquaintances at Oxford looked upon him as insane.

"Though his experience from Chickamauga to boarding a train near Kansas City was given in the most certain and positive way while in X3, and though he had no relatives that he knew of in this personality, yet it is probable that during that time he had inklings of his former life from some source or other which led him back to Nebraska. He may, however, have learned that he belonged in Nebraska by letters in his pocket or other means in camp before leaving Chickamauga. It seems probable, taking everything into consideration, that there was slight knowledge of his other lives in this personality.

"That the uniting of his three selves into a conscious unity did not insure against subsequent lapses is shown by experience later. On May 7th he came to my office feeling badly, suffering from headache, and depressed in general. I hypnotized him and suggested that on waking he would feel better. He woke and seemed better. After sitting for several minutes he looked about, somewhat surprised, and without any visible signs of change, he remarked, 'Doctor, I have been asleep again.' The last he could recall he was entering the building and waiting for the elevator, but how he reached my office and all that transpired in the meantime was an utter blank to him. His partner, with whom

he lives, says that such lapses used to be rather frequent with him.

"In order to verify the history of the case numerous letters had been written to parties mentioned by X1, X2, and X3; one of these letters was sent to the army post at San Francisco to inquire as to his enlistment and desertion from the army as a result of a change of personality, but no answer was received. On May 14th, acting upon information gained from my letter to San Francisco, officers from Vancouver post came and arrested X, and took him on the car to Vancouver, charged with desertion from the army at San Francisco. On May 16th, at Vancouver, I presented the history of his case to the officials in order to obtain his release. After the conference with the officials X was brought in. To my surprise he was X2 again; knew absolutely nothing of X1 or X3 or of his experiences subsequent to uniting his three selves. Only X2 was known to him. After hypnotizing him and suggesting that he would remember all his life again he woke with full memory of X1, X2, and X3 as before he was arrested.

"So far twenty-eight letters have been received in answer to inquiries sent to relatives, acquaintances, War Department, etc., each and all of which verify most accurately the history described. Changes of personality took place twice while in the army, and he was recorded and hunted as a deserter. He enlisted the first time as X1, the second time as X2, and each personality knew nothing of the other enlistment. At first these two desertions raised a suspicion in us that he might be deceiving in order to cover up his guilt, but second thought, on the contrary, confirms his duality in the two acts, for a deserter would scarcely run the risk of re-enlisting. Furthermore, proof that he had changes of personality previous to any connection with the army in addition to confirmatory evidence from numerous other sources removes any possibility of insincerity on his part. Aside from the corroborative evidence, observation

of the man during treatment would have been sufficiently convincing to remove all doubt.

"X1 was perfectly well, jovial, bright, knew the names and addresses of all his relatives and could give an accurate account of his boyhood days. He had rather accurate dates for everything. Was eager to educate himself, though he was only an ordinary laborer as a rule. X2 was quiet in disposition, preferred to be alone, had spells of sleepiness, always had some headache, knew but little of his relatives, and that was learned subsequent to age of eighteen; a good mechanic, ambitious, and inventive; desirous for an education and distinctly religious in character. All in all, his life bore a sad, melancholic aspect. X3 was a typical tramp, largely due to the fact, no doubt, that he began this life where he did. Though eighteen years old at Chickamauga, when asked where he came from, he answered 'didn't come from any place.' Worked only enough to exist; severe pains in head and abdomen; always hungry; all in all, a lower type of man by far.

"All three personalities had a remarkable memory for details. The same name was retained in all. In addition to the three personalities described there was still another state which may possibly be a fourth, but each time he was thrown into it he was semi-delirious and no definite information could be obtained from him. The place of this state, in its relation to the personalities described, is difficult to determine. In it he raved with pain and was always thirsty. This state *may* account in part for some of the gaps remaining unfilled.

"In his united self he is radically different from what he was previous to the barge accident. Previously taciturn and fond of solitude, in his united self he became social and settled, moodiness disappeared. He still manifests the old ambition for an education, though at present he chafes under the monotony of his wait in prison until the routine of government formalities shall be accomplished. Under

the circumstances his ultimate release would seem to be a mere matter of time, but the worry and mental excitement incidental to his arrest give him almost continuous headache, and at times plunge him into despondency which makes him wish he were dead.

"After the fusion of his three lives the first time, a minute and detailed history of his boyhood and early manhood was taken in order to see if any cause of the trouble could be detected. As a boy he received very rough treatment from his father, but no definite etiology of his condition could be discovered. Though changes of personality occurred two or three times under what seemed to be a definite etiological factor, such as the fight at Glenrock and the fever at Chickamauga, yet these things cannot be considered the sole cause of the trouble. In the great majority of cases his changes of personality took place while on a train or immediately following—a fact not without significance.

"The changes from one personality to another were at times gradual, instead of abrupt. At times memory of one stream of consciousness faded out gradually as the other came into prominence. One of the changes which occurred in my presence was of this type. Several times in one personality short preceding experiences were vaguely recalled and thought to have been dreams, showing that at times either the different selves overlapped, as it were, to some extent, leaving the period of change indistinct in each, or else—what is more probable—the events supposed to have been dreamed were experiences of the same self under a sort of psycho-epileptic seizure. Under the latter supposition the gap **c in the schedule above may be a sort of psycho-epileptic mutation of X3 instead of a change into X2. The whole process throughout might not improperly be called a psycho-epileptic exchange of personality.

"The personality, designated throughout this article as

the 'united self,' cannot be considered as *composed of* X1, X2, and X3, as constituent parts, but, strictly speaking, the so-called 'united self' is a new unified experience, even as X1, X2, and X3 were originally. This was clearly exemplified by the fact that after his return to X2 at Vancouver subsequent to the uniting of X1, X2, and X3 in memory, he not only knew nothing of X1 and X3, but the experiences of the so-called 'united self' were also a blank to him.''

CHAPTER XXIII

MANIFOLD PERSONALITY (*continued*)

Of a somewhat different nature is the case reported by Dr. Osgood Mason in the *Journal of Nervous and Mental Diseases,* September, 1893. The disaggregation is deep and clear, and the dissociated personalities are well defined.

"Alma Z. has been under my observation during the past ten years. In childhood she was remarkable for her intelligence and unusual endowments. Up to her eighteenth year she was in robust health, excelling all her companions not only in intellectual attainments, but also in physical culture, being expert in gymnastic exercises, skating and athletic sports generally. At that time, owing to overwork at school, peculiar physical conditions made their appearance. Instead of the educated, thoughtful, dignified, womanly personality, worn with illness and pain, there appeared a bright, sprightly child-personality, with a limited vocabulary, ungrammatical and peculiar dialect, decidedly Indian in character, but, as used by her, most fascinating and amusing. The intellect was bright and shrewd, her manner lively and good-natured, and her intuitions were remarkably correct and quick; but, strangest of all, she was free from pain, could take food, and had comparatively a good degree of strength. She called herself 'Twoey,' and the normal or usual personality she always referred to as 'No. 1.' She possessed none of the acquired knowledge of the primary personality, but was bright and greatly interested in matters going on about her—in family affairs, and everything which pertained to the comfort and well-being of No. 1.

"The new personality would remain only a few hours,

but occasionally her stay was prolonged to several days; and then her normal self—the No. 1 of 'Twoey'—returned with all her intelligence, patience, and womanly qualities, but also with the weakness and suffering which characterized her illness.

"No. 1 and No. 2 were apparently in every respect separate and distinct personalities. Each had her own distinct consciousness and distinct train of thought and memories.

"When No. 1 was absent and 'Twoey' took her place, on resuming her consciousness she commenced at the place where her own personality had been interrupted and resumed her ordinary life exactly at that point. To No. 1 the existence of any second personality was entirely unknown by any conscious experience, and the time which 'Twoey' occupied was to her a blank. If 'Twoey' appeared at noon on Tuesday and remained until Thursday night, when she disappeared and No. 1 resumed her own consciousness and life, she would commence at Tuesday noon where that consciousness was interrupted. The intervening time to her was a blank. No. 2, however, while having her own distinct life, knew also the life of No. 1, but only as a distinct personality, entirely separate from herself. No. 1 also came to know 'Twoey' by the description given by others, and by the change in her own personal belongings and affairs which she saw had been effected during her absence. The two personalities became great friends. No. 2 admired No. 1 for her superior knowledge, her patience in suffering, and the lovely qualities which she recognized, and she willingly took her place in order to give her rest, and, as it seemed, the possibility of living at all. No. 1 also became fond of 'Twoey' on account of the loving care which she bestowed upon her and her affairs, and for the witty sayings and sprightly and pertinent conversations which were reported to her, and which she greatly enjoyed.

"'Twoey' seemed to have the power of going and coming at will. She often left communications to No. 1, mostly written (for she became able to write in her peculiar dialect—very difficult to decipher), telling her what had been done in her absence, where she would find certain things, or advising her when she deemed it necessary, and her advice was always sound and to the point.

"Under an entire change in medical treatment—change of scene and air and the use of animal magnetism and hypnotism—health and normal conditions were restored, and 'Twoey's' visits became only occasional, under circumstances of extreme fatigue or mental excitement, when they were welcome to the patient and enjoyed by her friends. Two years later the patient married, and became a most admirable wife and intelligent and efficient mistress of the household.

"Later on, however, the No. 2 condition, or personality, began to return with greater frequency, but at length, one night, 'Twoey' announced that she would soon take her departure, but that another visitor would come to take her place. Presently an alarming attack of syncope occurred, lasting several hours; and when consciousness did at last return, it was represented by a third personality, entirely new and entirely distinct, both from the primary self and also from the 'Twoey' with whom we were so well acquainted. The new personality at once announced itself as 'The Boy,' and that it had come in the place of 'Twoey' for the special aid of No. 1; and for several weeks, whenever this third personality was present, all its behavior was entirely consistent with that announcement.

"Gradually, however, she became accustomed and reconciled to her new rôle and new surroundings, and adapted herself with most astonishing grace to the duties of wife, mother and mistress of the house, though always when closely questioned she persisted seriously in her original declaration that she was 'The Boy.' The personality was

of much more broad and serious type than that of the frolicsome 'Twoey,' and while entirely separate in consciousness and personality from No. 1, she was much nearer to her in general outline of character. The acquired book knowledge of No. 1—the Latin, mathematics, and philosophy acquired at school—were entirely wanting in the new personality; the extensive knowledge of general literature —the whole poems of Tennyson, Browning, and Scott, which No. 1 could repeat by heart, also her perfect familiarity with the most beautiful and poetic portions of the Bible—all of these were entirely lacking in this personality. In a general knowledge of affairs, however, in the news of the day from all over the world, and in current literature, she at once became thoroughly interested and intelligent, and the judgment was keen and sound. She took the greatest delight in every kind of amusement—the theatre and literary and musical entertainments—and her criticisms of performances and books were independent, acute, and reliable. At the same time her household affairs and her interest in them and all subjects pertaining to the family were conspicuous.

"Of the preceding personalities she was fully cognizant, and had great admiration and affection for them both. She would listen to no disparaging remarks concerning 'Twoey,' and her admiration for No. 1 was unbounded. Neither 'Twoey' nor No. 3 ever seemed anxious to continue and prolong their visits, but, on the contrary, were always desirous that No. 1 should regain her health sufficiently to get on without them; and they referred with much feeling to the causes which prevented it.

"The peculiar and interesting incidents which diversified these different states of consciousness would fill a volume. No. 1, when in her condition of greatest weakness, would occasionally astonish her listeners by announcing to them some event which they had kept profoundly secret from her. For instance: 'You need not be so quiet about

it; I have seen it all. Mrs. C. died the day before yesterday. She is to be buried to-morrow;' or, 'There has been a death over in such and such a street. Who is it that died?' 'Twoey's' sagacity, amounting almost to prevision, was often noticed, and many a time the neglect to be guided by her premonitions was deeply regretted. 'The Boy,' or No. 3, frequently exhibited peculiar perceptive powers. At times the sense of hearing would be entirely lost, so that the most violent noises close to her ears and when perfectly unexpected failed to startle or disturb her in the slightest degree, although usually she was easily startled by even a slight, sudden, or unexpected noise. Under these circumstances she had a peculiar faculty of perceiving what was said by watching the lips of the speaker, though ordinarily neither she nor the primitive self had any such faculty.

"In this condition she had often carried on conversations with entire strangers, and entertained guests at table without their having once suspected that all the while she could not hear a sound of any sort. I have myself seen her sit and attend to the reading of a new book simply by watching the lips of the reader, taking in every word and sentiment, and laughing heartily at the funny passages, when I am perfectly sure she could not have heard a pistol-shot from her head.

"When the No. 3 personality had persisted for a considerable period—weeks, for instance, at a time, as it has sometimes done—the temporary return of No. 1 under the influence of some soothing condition or pleasing sentiment or emotion has been beautiful to witness. I saw this transformation once while sitting with her in a box at the Metropolitan Opera-House. Beethoven's concerto in C Major was on the programme; in the midst of the performance I saw the expression of her countenance change; a clear, calm, softened look came into the face as she leaned back in her chair and listened to the music with the most intense

enjoyment. I spoke a few words to her at the close of the number, and she replied in the soft and musical tones peculiar to her own normal condition, and I recognized without the slightest doubt the presence of No. 1. A few minutes later her eyes closed; presently she drew two or three short, quick respirations; again her countenance changed, and No. 3 was back again. She turned to me and said, 'So No. 1 came to hear her favorite concerto?' I replied, 'Yes; how did you know it?' 'Oh, I was here and listened to it, too.' 'Where were you?' I asked. 'I sat on the front of the box. I saw you speaking to her. How greatly she enjoyed the music!' and then she went on listening to the music and commenting upon the programme in the usual discriminating manner of No. 3.''

The case is certainly very interesting, and in many respects similar to that of Felida. The two shed light on each other. The patient is of a psychopathic disposition, and cerebral overwork brought about a weakening of the principal controlling constellations of neurons with its concomitant leading synthetic moment consciousness. Some strong emotion or some kind of trouble was probably the exciting cause that brought about a total disintegration, or a disaggregation of the constellation into its constituent or subordinate systems and clusters with their correlative moments.

The relation of No. 1 to ''Twoey'' is somewhat like that of the primary to the secondary state in Felida. No. 1 does not know ''Twoey,'' but the latter knows the experiences of the former, knows them as those of ''another,'' as not belonging to herself, to ''Twoey.'' The content of the No. 1 personality is in some respects superior and wider than that of the ''Twoey'' personality. Much of the content of one personality is also present in the other, such as the natural instincts of life, many of the simple acquirements, such as walking, dressing, using different utensils for eating, talking and understanding speech, knowing articles, and

so on. Still, the change is great. In the "Twocy" state the patient seemed to have lost her ability of writing and all her higher acquirements in literature and in music. There was a change in the patient's language; agrammatism was observed. Her pains and sufferings were gone. The change in character seemed to have been profound, from a cultivated, thoughtful, dignified young lady there was a change to a child-personality, shrewd, bright and sprightly, with a limited vocabulary, decidedly Indian in character. All the states belonging to the personality No. 1 were synthetized in one synthetic moment, and so were also all the states of "Twoey." Two moments were thus formed within the patient's mind, each having a distinct synthesis for series of mental states; in other words, the two organized synthetic moments kept on alternating periodically. This case, like that of Felida, is one of periodical multiple consciousness.

The two crystallized, independent moments became weakened, could not maintain themselves long, and another synthetic moment consciousness, "The Boy," got formed and temporarily became the leading one in the patient's mental life. This was preceded by an attack of syncope lasting several hours. "The Boy" personality differed both from "Twoey" and from No. 1. It possessed far more of the content belonging to the No. 1 personality. The behavior of the new personality was consistent with its name and lacked the book-knowledge of the normal state. In this state the sense of hearing was sometimes entirely lost, and still she could carry on conversations with guests, could attend to the reading of a book and enjoy it heartily, although "she could not have heard a pistol-shot near her head." The writer ascribes this to a new faculty peculiar to this state only, perception of speech by watching the movements of the speaker's lips. No such new faculty is really required as an explanation for the patient's perception of words to which she was seemingly

deaf. Her deafness was not of an organic, but of a functional psychopathic nature. It can be fully demonstrated by experiment that in such states the patient, though seemingly not perceiving, really does perceive. The dissociated moments in the subconscious perceive and transmit the experience to the dominating, functioning synthetic moment consciousness. The patient did hear, and not the sounds, but the meaning of the words were transmitted to her functioning moment, "The Boy" personality.

In passing from one personality to another the patient seemed to have had a brief intermediary sleeping state termed by me the hypnoleptic state; especially was this so in passing from No. 1 into one of the other states. The author omitted to describe it, but that such a state really existed one can judge from the author's statement that, when he was with the patient in the theatre, the No. 1 personality appeared. "A few minutes later," writes Dr. Osgood Mason, "her eyes closed; presently she drew two or three short, quick respirations, and No. 3 was back again."

In this interesting case we find a weakening by disease of the upper controlling personality; the subconscious gained mastery, rose to the plane of conscious individuality and became a person, a "Twoey." The "Twoey" personality, however, seemed to have been unstable, and a new personality, that of "The Boy," emerged. Both "Twoey" and "The Boy" were but two different expressions, two different individualized manifestations of the same underlying reality—the subconsciousness. It was from the depth of the subconscious that those bubble personalities rose to the surface of conscious life.

The following case[1] gives a well-defined picture of manifold personality:

"The subject, V. L., is a young man of seventeen years, affected with hysterical epilepsy, who entirely lost the

[1] See Ribot, Diseases of Personality.

memory of one year of his existence, and during the period of forgetfulness totally changed his character.

"Born of an unmarried mother, who was 'addicted to an open life of debauchery, and of an unknown father, he began to roam and beg on the streets as soon as he could walk. Later he became a thief, was arrested, and sent to the reformatory of Saint-Urbain, where he did some field work.' One day, being occupied in a vineyard, he happened to lay his hands upon a serpent, hidden in a fagot of twigs. The boy was terribly frightened, and in the evening, on returning to the reformatory, became unconscious. These crises were repeated from time to time, his legs grew weak, finally a paralysis of the lower limbs set in, his intellect remaining unimpaired. He was thereupon transferred to the asylum of Bonneval. There it was reported 'that the patient has an open and sympathetic expression, that his character is amiable and that he shows himself grateful for the care that is bestowed upon him. He tells the history of his life in all its minutest details, even his thefts, which he deplores, of which he is ashamed, and which he attributes to his forsaken condition and his comrades who led him into evil ways. He regrets very much what has happened, and declares that in the future he will be more honest. It was then decided to teach him a trade compatible with his infirmity. He can read, and is learning to write. He is taken every morning to the tailor's shop, where he is placed upon a table and assumes, naturally, the classical position owing to the condition of his lower limbs, which are atrophied and contracted. In two months' time he learned to sew pretty well. He works with enthusiasm, and everybody is satisfied with his progress.'

"At this stage he is seized with an attack of hystero-epilepsy, which, after fifty hours, ends in a tranquil sleep. It is then that his old personality reappears.

"On awakening, V. wants to get up. He asks for his clothes, and is able to dress himself, but performs the

operation in a very bungling manner; he then takes a few steps through the hall, his paraplegia having disappeared. His legs totter and with difficulty support the body because of the atrophy of the muscles. . . . When once dressed, he asks to go to his comrades into the vineyards to work. . . . We quickly perceive that our subject still believes himself at Saint-Urbain, and wishes to resume his habitual occupations. In fact, he has no recollection of his crisis and recognizes nobody, the physicians and attendants no more than his companions of the ward. He does not admit having been paralyzed, and accuses those about him of teasing him. We thought of temporary insanity, which was very likely after so severe an attack of hysteria, but time passes and still his memory does not return. V. remembers very distinctly that he had been sent to Saint-Urbain; he knows that 'the other day' he was frightened by a serpent; but from that time all is oblivion. He remembers nothing more, and has not even the feeling of the time elapsed.

"It was thought that he might be simulating, as hysterical patients often do, and we employed all means to make V. contradict himself, but without success. Thus, without letting him know where he is going, we have taken him to the tailor's workshop. We walk by his side, and take care not to influence him as to the direction to be taken. V. does not know whither he is going. On arriving at the shop he has every appearance of a person who does not know where he is, and he declares that he has never been there before. He is given a needle and asked to sew. He sets about the task as awkwardly as a man who performs a job of this kind for the first time. They show him some clothes, the seams of which had been sewn by him during the time he was paralyzed. He laughs and seems to doubt, but finally inclines to our observations. After a month of experiment and trials of all kinds, we are convinced that V. really remembers nothing."

One of the most interesting points of this case is the modification that the character of the patient underwent, which was a return to his early life and to his hereditary antecedents: "He is no longer the same subject; he has become quarrelsome and is a glutton; he answers impolitely. Formerly he did not like wine, and usually gave his share to his companions; but now he steals theirs. When they tell him that he once committed thefts, and caution him not to begin again, he becomes arrogant, and will say, 'if he did steal, he paid for it, as they put him into prison.' They employ him in the garden. One day he escapes, taking with him sixty francs and the effects of an attendant of the infirmary. He is recaptured five miles from Bonneval, at the moment when, after selling his clothes to purchase others, he is on the point of boarding the railway train for Paris. He resists arrest, and strikes and bites at the wardens sent in search of him. Brought back to the asylum, he becomes furious, cries, rolls on the ground; finally it is necessary to confine him in a solitary cell."

Dismissed from the asylum, after many peregrinations, he is taken to Bicetre, escapes, and enlists in the Marine Corps at Rochefort. Convicted of stealing, he is confined, at the end of a violent attack of hystero-epilepsy, to the care of Messrs. Bourru and Burot, who have studied him with great care and obtained in their subject the six following states:

First state. Hemiplegia and hemianæsthesia of the right side. Ordinary state of the subject.

"V. is talkative, violent, and arrogant in look and manner; his language is correct, but rude; he addresses everyone in the second person singular, and gives to each a disrespectful surname. He smokes from morning till night, and besieges everyone with his demand for tobacco, etc. Still, he is intelligent. He keeps himself *au courant* with all the events of the day, great and small, affects the most antireligious views in religion and the most ultraradical opinions in politics. Incapable of discipline, he wishes to

slay all his superiors, or anyone even who would exact from him a mark of respect. His speech is embarrassed; his defective pronunciation permits only the endings of his words to be heard. He can read, but this vice of pronunciation renders his reading aloud unintelligible. He cannot write, his right hand being paralyzed. His memory, very precise for the slightest details, present or recent (he recites whole columns from the newspapers), is very limited in point of time. It is impossible for him to carry back his memory beyond his present sojourn in Rochefort and the last part of his stay at Bicetre in the service of M. Voisin. Nevertheless, he has preserved the memory of the second part of his stay at Bonneval, when he worked in the garden. Between Bonneval and Bicetre a great gap yawns in his memory. Beyond this, his birth, his childhood, his sojourn in Saint-Urbain, the trade of tailoring, which he learned upon his arrival at Bonneval, are a total blank to him.''

Second state. Hemiplegia of the left side (face and limbs) with hemianæsthesia.

''On waking, V. is at Bicetre (ward Cabanis, No. II); the second of January, 1884; age twenty-one; saw M. Voisin yesterday. He is reserved in his bearing; his expression is gentle; his language is correct and respectful; he now addresses no one in the second person singular, but calls each of us 'Monsieur.' He smokes, but not passionately. He has no opinions in politics or in religion; these questions, he seems to say, do not concern an ignorant man like him. He shows himself respectful and orderly. His speech is easy and his pronunciation remarkably clear. He reads perfectly well, and writes a tolerable hand.

''He knows nothing whatever of the events that have taken place since the second of January, 1884; he does not know where he is, nor any of the persons who surround him. He never came to Rochefort. He never heard of the Marine Corps or of the war with Tonquin.

''In evoking his prior memories he recounts that be-

fore entering Bicetre he had stayed for a while at Sainte-Anne; beyond that point in his life no memory subsists."

Third state. Hemiplegia of the left side (the limbs alone) with general hemianæsthesia.

"The patient awakes at the asylum of Saint-Georges de Bourg, August, 1882; he is nineteen years old. France is at war with Tunis. M. Grévy is President of the Republic; Leo XIII. is Pope. His character, his affective faculties, his language, his physiognomy, his tastes are like those of the second state. As to his memory, he is limited to a prior epoch. He comes from Chartres to his mother, whence he has been sent to Macon with a large landed proprietor, where he was put to work in the vineyards. Having been taken sick several times he was cared for in the hospital of Macon, then at the asylum of Bourg, where he is at present. All that precedes, all that follows this short period of his life is totally foreign to him."

Fourth state. Paraplegia.

"He has just seen several persons of the asylum of Bonneval. He is decorous, timid, even sad. His pronunciation is distinct, but his language is incorrect, impersonal, childish. He has forgotten how to read and write. His intelligence is very obtuse; his confused memory knows nothing of the events of the personages of that epoch. He knows only two places: Bonneval, where he believes he now is, and Saint-Urbain, whence he has come, where he was, he says, paralyzed, stricken down. The whole prior part of his life, from his birth to the accident with the viper, which brought on his malady, all that followed the attack and the spontaneous alteration of his condition at Bonneval, are absolutely unknown to him. He does not recognize the place he is in, nor has he ever seen us who are about him. His ordinary occupation is work in the tailor's shop. He sews like one long in the business."

Fifth state. Neither paralysis nor anæsthesia.

"He regains consciousness at Saint-Urbain in 1877; he

is fourteen years old. Marshal McMahon is President of the Republic; Pius IX. is Pope. Timid as a child, his expression, language, and attitude accord perfectly. He can read perfectly well and writes tolerably. He knows his whole childhood, the bad treatment he received at Luysant, etc.

"He remembers having been arrested and condemned to imprisonment in a house of correction. He is at the reformatory directed by M. Pasquier. He learns to read at the school of Mlle. Breuille. He is employed in agricultural work. His memory is arrested exactly at the accident of the viper, the mention of which brings on a terrible crisis of hystero-epilepsy."

Sixth state. Neither paralysis nor anæsthesia.

"He comes to consciousness on the sixth of March, 1885; is twenty-two years of age; he knows the events of the times and personages in power; but Victor Hugo, the great poet and senator, is still living. He is no longer the timid child of a moment ago. He is a proper young man, neither pusillanimous nor arrogant; he is a soldier of the Marine Corps. His language is correct; his pronunciation is distinct. He reads very well and writes passably. His memory embraces his whole life with the exception of one epoch, that during which he was afflicted with paraplegia at Saint-Urbain and Bonneval. Also he does not remember having been a tailor and does not know how to sew.

"These, then, are the six different states of consciousness, the *ensemble* of which embraces the whole life of the subject.

"To act on the psychic state we have no other means except suggestion in somnambulism. We make, therefore, the following suggestion: 'V., you are to wake up at Bicetre, ward Cabanis.' V. obeys. On awaking from provoked somnambulism he believes it is the second of January, 1884; his intelligence and affective qualities are exactly what we have seen described in the second state. At

the same time he is afflicted with hemiplegia and hemianæsthesia of the left side; the force exerted upon the dynamometer, the hysterogenic zone, all are transferred as in the second state.

"In another suggestion we command him to awake at Bonneval when he was a tailor. The psychic state obtained is similar to that described in the fourth state, and simultaneously with it the paraplegia appeared with contracture and insensibility of the lower parts of the body."

CHAPTER XXIV

SECONDARY INFANT PERSONALITIES

THE cases we have analyzed thus far present formation of independently functioning constellations with concomitant moments that possess more or less common content. Though the change is great in the character of the moment, still the fundamental psychic material remains unchanged; instincts, acquirements and many of the habits are present to both or to all the independently functioning moments. Not so is it in the cases we have to consider now. The content of the moment that ceases to function is submerged, and is not present in the newly functioning moment. The patient in coming out from the "attack" is invariably characterized by the observers as "one newly born, one just ushered into life." The newly rising or developing moment must acquire new content, although the dissociated moment with its submerged content greatly aids in the speedy development of the newly functioning moment consciousness.

In these phenomena the dissociation reaches its maximum. We must, however, point out that even such pathological manifestations present dissociation of different degrees of extensity. Some shreds of the old experience and acquirements are more or less present in the newly rising moment. The only case which is altogether free from such remnants and presents the phenomena of dissociation in their purest aspect is the case of Hanna, and that is why it is so extremely valuable for the purposes of investigation.

Cases of total dissociation, phenomena where the psychic content itself is lost with the disaggregation of the

old moment consciousness, though even some odd remnants of former riches may have been transmitted to the young heir, are extremely rare, but for that very reason they are so highly valuable. We may begin with the interesting case described by Dr. Mortimer Granville, in *Brain,* for 1879.

In 1858 (20 years before) Dr. Mortimer Granville was requested to see daily a governess and teacher of music, who had been attacked with what was called acute mania. "Found a spare, somewhat angular, eccentric-looking woman, age 26, in state of great excitement, hysterical and choreic. Within a few hours after paroxysm of considerable violence, during which she talked and sang mildly, and was with difficulty restrained by those around her; she fell into a state verging on suspended animation, which lasted a week. Skin was cold, presented dark, mottled appearance; pulse scarcely perceptible at wrist. Breathing slow and seldom deep; seemed to be complete loss of consciousness and scarcely any trace of sensibility. Muscles cataleptic and extremities dropped slowly when raised. Was barely possible to feed patient by mouth; by holding forward the larynx and placing the fluid far back in pharynx with spoon, where it seemed to flow down the œsophagus as through a flaccid tube. This condition, which was treated with interrupted current from occiput to hypogastrium, etc., subsided very gradually. Then came the state I am chiefly interested to note. There had clearly been an exciting cause for the attack in religious excitement acting on a nervous system exhausted by protracted toil as teacher.

"When consciousness began to return the latest sane ideas formed previous to the illness mingled curiously with the new impressions received, as in case of a person awakening slowly from a dream. When propped up with pillows near the bed, so that passers in the street could be seen, the patient described the moving objects as 'trees

walking,' and when asked where she saw these things she immediately replied, 'In the other gospel.' In short, her mental state was one in which the real and the ideal were not separable. Her recollections on recovery and for some time after were indistinct, and, in regard to a large class of common topics, which must have formed the staple material of her thought up to the period of attack, memory was blank. For example, although this young woman supported herself as governess, she had no recollection of so simple a matter as the use of a writing implement. When a pen or pencil was placed in her hand, as it might be thrust between the fingers of a child, the reflex act of grasping it was not excited. This state lasted some weeks, and the 'recollection' of what had been 'forgotten' was slow and painful, needing or seeming to require a process of re-education. In the end recovery was mentally and physically satisfactory.''

Another case of still greater interest and far richer in details and in the course of its manifestations is described by William Sharpey, F.R.S., Professor of Anatomy and Physiology, the University of London, in *Brain,* for 1879.

''Mrs. H., patient, about twenty-four years old (this was written in 1824), pale complexion and slender make. Married in July, 1823, and with exception of occasional headache, to which she, in common with some of the rest of her family, was subject, previously enjoyed good health of body and mind.

''After her marriage she resided in England till the end of April, 1824, when, in consequence of ill-health, she was brought here by her husband. From husband's account it appeared that for about three months after their marriage she enjoyed perfect health and spirits, but that after that she complained a good deal of pain in stomach and bowels; appetite bad, bad spirits, imagining herself unequal to concerns of house, though only herself and husband, and it was also observed she slept more than usual.

"On her arrival here, in April, physically appeared well; all her external senses were sound, but memory was impaired, and she was very inattentive to surrounding objects. The sleepiness had been gradually increasing, and was now at such a height that unless when conversing with another person, or engaged in manual occupation, she fell asleep at all times and in whatever position. When in this state her eyes were nearly closed; she breathed softly and, in short, very much resembled a person in natural sleep, except that when she happened to fall asleep in a position in which the body naturally requires to be supported; as, for instance, on a chair, she did not lean forward or backward, as is commonly the case, but sat with her body quite erect and her head gently inclined to one side. While in this state she was subject to frequent startings, during which she raised herself up, talked as if frightened, drew herself back, as if to avoid something disagreeable, and then lay quietly down again as if without having awoke. What she said on these occasions, though quite incoherent, was yet always nearly of the same nature and for most part consisted even of same expressions, which were those of great aversion or horror; of this she had no recollection when awake, nor of anything connected with it; and she herself remarked as something extraordinary that now she did not dream, although she used formerly to be subject to dreaming. From this sleep she never awoke of her own accord, except to obey the calls of nature; and there was no other way of rousing her up upon other occasions but by placing her on her feet and endeavoring to make her walk.

"When thus forcibly awakened, she was fretful and cried for some time after. She took food in sufficient amount and often with evident relish, but it took entreaty to make her take the first mouthfuls.

"The pulse varied a little, but on the whole natural; during sleep was 56 to 70, and somewhat more when awake.

Urine charge normal; catamenia hitherto regular, but small amount. She complained of no pain or other uneasiness except a peculiar feeling on top of head which she called 'funny.'

"For five weeks after arrival the torpid state and indifference to surrounding objects gradually became worse, and difficulty of awakening her increased daily, till about the 8th or 10th of June it was found impossible to rouse her up at all by any means, and thenceforth, except a few short intervals, she remained in a state of constant sleep till beginning of August. Her condition was now singular. She still made an attempt to get out of bed to stool; when food was presented to her lips with a spoon she readily took it into her mouth and swallowed it, and thus she was fed; when she had taken what appeared to be enough she closed her teeth as a sign she was satisfied; she appeared able to distinguish different tastes. She gave evident preference to some sorts of food, and ostensibly refused others. She sometimes even judged of nature of food or medicine offered by sense of smell.

"By this time the startings in her sleep had left her; although expressions uttered in that state were nearly same as formerly, yet her manner of speaking was now of satisfaction and not fright. She often even sang to a simple but cheerful air nearly the same words which she used formerly to cry out in terror.

"The torpor continued in same degree till end of July, with occasional intervals of awakening which happened at uncertain periods, but usually at distance of a few days from each other and occasioned by pain experienced in some part of her body. First of these took place after she had been ten days in continued torpor; caused by griping medicine, she awakened in great pain, crying out, 'Pain, pain, die, die,' placing her hands on abdomen. She was relieved by fomentations, but nevertheless kept awake for some hours, during which she answered no questions and

recognized nobody except one old acquaintance whom she had not seen for more than twelve months. She looked steadfastly into this person's face for a few moments, apparently occupied in trying to remember his name, which she at length found out and repeated again and again, and at the same time taking him by the hand as if overjoyed to see him; but when questioned regarding him she answered only by calling out his name, which she continued to repeat for some time after she had fallen asleep in addition to what she usually said. In the course of the next eight days she was twice roused from her sleep by similar cause, but not so completely; same individual was the only person she knew; among others she did not recognize even her own husband.

"The next interval of waking took place three or four days after; it appeared occasioned by pain in the head; she cried for some time, then awoke complaining of pain with her hand on her forehead; she placed hand of person near by also on her forehead. The same thing happened on next three or four succeeding evenings, nearly at the same time. Other circumstances this time showed she was suffering from uneasiness in the head. She was very impatient in erect posture, and when placed on ground drew up her legs as if to force lying down again. This was not the case when she needed to be taken up for evacuation. She generally also preferred to lie on her face and with head low, both hands clasped firmly over it, exactly on part to which she had referred as peculiar feeling. After this torpor continued for some time without being interrupted.

"Toward end of July torpid state which had suffered no intermissions had become on the whole not quite so deep, at least, patient gave signs of more consciousness of anything done to her. She smiled and seemed pleased on receiving particular sorts of food, and when eye opened and face touched, whole countenance was suffused with flush. Some time after it was possible to awake her by opening

her eyes and holding anything before them likely to catch her attention, such as a glass of water.

"When thus awakened she laughed a good deal, and seemed delighted, and always bestowed her whole attention on vessel containing her food and the person holding it; she did not speak, however, or pay any attention to questions put to her. She began to take great liking to the attendant, and would hardly allow her out of sight. Now, also, she would creep cautiously onto the floor from her bed and creep to fireside and would lie down on the hearth-rug as if warming herself. At length, after gradually improving, she was by third week in August almost free from torpor and slept little more than healthy persons. Temperature was normal. Pupil normal. Had lost flesh.

"On her recovery from torpor she appeared to have forgotten all her previous knowledge; everything seemed new to her, and she did not recognize a single person, not even her nearest relatives. In behavior she was restless and inattentive, but very lively and cheerful. She was delighted with everything she saw or heard and, altogether, resembled a child more than a grown person.

"In short, she became rather more sedate and her attention could be longer fixed on one object. Her memory, too, so entirely lost as far as regards previous knowledge, was soon found to be most acute and retentive with respect to everything she saw or heard subsequent to her disorder, and she has by this time recovered many of her former acquirements, some with greater, some with less facility. With regard to these it is remarkable that though the process followed in regaining many of them consisted in recalling them to mind with assistance of neighbors rather than in studying them anew, yet even now she does not appear to be in the smallest degree conscious of having possessed them before.

"At first it was scarcely possible to engage her in con-

versation; in place of answering questions, she repeated them aloud in same words put, and even long after she came to answer questions she constantly repeated them over once before replying. At first she had very few words, but soon acquired many and often strangely misapplied them. She did this, however, mostly in particular ways; often, for instance, made one word answer for all others which were in any way allied to it; thus, in place of tea, she asked for juice, and this word she long used for liquids. For a long time, in expressing qualities of objects, she invariably used very opposite words; thus, 'white' in place of 'black,' 'hot' for 'cold,' etc.

"She now uses words with propriety.

"Has as yet recognized no person; that is, has no recollection of seeing them previous to her illness; knows them only as new acquaintances, but with no idea of what relation they bear to her.

"Has acquired reading, but had to begin with alphabet. Afterward learned to form syllables and small words.

"Reacquisition of her reading facilitated by singing words of familiar songs. In learning to write began with elements.

"In singing she at first generally required to be helped for first two or three words, and made out the rest apparently from memory.

"Friends think she now plays as well, if not better, than before illness.

"When asked how she learned to play notes from book, replied she couldn't tell, and wondered why questioner could not do the same.

"Once or twice had dreams which she often related to friends, and seemed quite aware of difference between dreams and reality.

"Indeed, from casual remarks, it appears she has many complex ideas which she had no opportunity of acquiring since recovery.

"Postscript, 1879:

"After a time patient returned home and passed rest of life happily and gave birth to a daughter, who survives her."

The patient was of psychopathic disposition. She proved unequal to the cares of housewife duties, cares that would in no way affect any average healthy individual. Her mental system was in unstable equilibrium, and it broke down under the strain of ordinary stimuli. She had a prolonged coma-like attack from which she woke up with all her previous knowledge entirely gone. She had to learn to speak, read and write. At first she hardly ever realized the meaning of speech, and like a child simply repeated by instinct the questions put to her. A similar state was also observed in the Hanna case. Whether her natural instincts were lost, such, for instance, as eating, drinking, or the way to take and handle utensils in connection with food, or whether she could dress herself, walk, etc., we do not know from the report of the case. It seems, however, as far as one can judge from the account, that much of it was lost, and whatever was retained was in a rather imperfect form. The instincts of the submerged moment were largely lost.

Memory in the newly formed or secondary moment proved extraordinarily retentive, a fact we also found in the Hanna case. Whatever was learned or mentioned once was fully retained.

It appears from Professor Sharpey's account that hypnoidal states were present, many experiences suddenly appeared in the consciousness of the newly formed moment, experiences that belonged to the patient's past life, to the content of the old disaggregated moment, but which the patient did not recognize, did not welcome as her own.

We must draw the attention of the reader to the prolonged attack or the intermediary state, the attack that separated the two moments. In this case the state is extremely interesting on account of its being of so long dura-

tion. While in this intermediary, seemingly unconscious condition the patient presented many hypnoidic states. Different moments were making attempts to rise from the depth of the subconscious and establish themselves as the principal ones in the patient's mental life. They were not, however, strong enough. They were not organized enough to maintain themselves and take the lead. The outcome was that none of them on account of their instability were fit to take the organizing part in the patient's mental life or become the centralizing synthetic moment of self-consciousness. Hence the patient on awaking came out with extremely limited content, with mere unorganized, broken bits of former life experience. Had any of the hypnoidic states been strong enough to get organized and gather material around itself the patient would have come out with a partly rearranged, differently crystallized, but still with much of the old content, and would have presented the phenomena of many of those cases which we have analyzed on previous pages.

It would have been interesting to know whether the two totally dissociated moments went on alternating. Professor Sharpey does not mention it. It seems they did not. It is unlikely that Professor Sharpey would not have noticed such an important trait of the case under his observation and treatment. The alternation might have set in after Professor Sharpey lost sight of the case, since it may take time before this phenomenon appears. It might as well be that such an alternation never occurred. Whether the patient has ever regained her former memories so as to recognize her past life and in what way, if it occurred at all, is not known. The case, therefore, is incomplete, and we may put it down as one of monocyclical bimorphosis with total loss of content.

The very frequently quoted case of Mary Reynolds, republished by Dr. S. Weir Mitchell in a more complete form, was until now the only case on record that presented

a complete loss of the content of memory in so far as the acquirements and habits were concerned, along with marked phenomena of periodical alternation of the two states.

The patient, Mary Reynolds, was of a strongly marked psychopathic disposition. She had many functional disturbances, suffered from convulsions, loss of consciousness, functional loss of sight and hearing. After having been greatly weakened by such a severe attack she fell into a profound sleep from which she could not be aroused, and on awaking was found to be deprived of all her former knowledge, of all recognition of former environment, of all her friends, no matter how near and dear. The natural instincts seem to have remained. She knew how to eat and how to drink; she neither had to learn to adapt herself to space, nor had she to learn to walk. Whether she knew how to dress herself or to observe personal cleanliness the report does not state. All her acquirements, such as speech, or the understanding of it, knowledge of events or persons, all were completely gone. Some shreds of phases of her former life remained and persisted in her second state. When she woke up from her profound slumber she, like an infant, was wailing some disconnected words and sentences, the meaning of which she did not know. In character and disposition she was completely changed. From being shy, morose and melancholic, in the primary state, she became in the secondary state gay, lively and playful. From being sedate and matter-of-fact, she became imaginative and with a knack for rhyming.

It is of importance to note the fact that the secondary state came through an attack of profound slumber, and that in passing from the primary to the secondary there was always present such an attack of various duration. In short, the hypnoleptic state is always present as the transition state. Furthermore, while the transition between the primary and secondary state took place as a rule in the

night, or, as the patient said, in the condition of ordinary sleep, usually at night-time, the contrary was in the opposite direction, the transition between the primary and secondary was always through an attack of "the profound sleep," of which the patient had some presentiment before—some sort of aura.

In the graduated series of cases presented to the reader we are confronted with greater and greater loss of content as we advance in the degree of dissociation. As we advance from case to case we meet with more and more dissociation of systems and their concomitant moments, until we reach cases where the dissociation is so complete that the old content is absent, where all the acquirements and habits have disappeared. Finally we reach the climax where not only all the acquirements, but where even the natural instincts have been lost. This we find in the case of Hanna. All these cases present one graduated series, and, although they may be classified into more or less definite types, still they shade imperceptibly into one another. The dissociation effected may be of any degree of extensiveness and intensity. One psychophysiological process, however, underlies all of them, and that is the process of system disaggregation and new system formation due to a redistribution in the rise and fall of the moment thresholds.

CHAPTER XXV

MULTIPLE PERSONALITY AND THE HYPNOLEPTIC STATE

Our analysis of the cases of double or multiple consciousness, together with the experimental study of the Hanna case, reveals to us the law that governs the different forms of psychophysiological segmentation.

A close examination of the cases reveals the fact that in some of them, though not in all, we find a psychopathic or neuropathic disposition. The patient's mental life is in a state of unstable equilibrium. The higher constellations and clusters of neurons with their concomitant mental systems are not firmly organized in the principal constellation correlative with the synthetic moment of self-consciousness. Thus the very cerebral organization has an inherent tendency to segmentation, or even disintegration, under conditions that would in no way affect more stable organizations. A strong stimulus, or even one of medium intensity, may set up a process of disorganization. A fall, a blow, a concussion, a strong emotion, any of them may produce "commotion cerebri," disintegration of the unstable neuron systems. Such cases we have already brought to the notice of the reader in our former chapters, and there is, therefore, no need to have them repeated here.

The hurtful stimulus, however, may not be of a violent character, acting suddenly, but of a mild nature, acting for a long time on the neural constellations and finally inducing the phenomena of dissociation and disintegration. In cases of confirmed alcoholism or in epilepsy we frequently find such disorders. The accumulation of toxic matter may bring about a rise of thresholds with a consequent disintegration of the constellation of neuron

systems, and the elimination of this poisonous material may effect a restitution.

It must, however, be pointed out that though cases of double consciousness may occur in epilepsy, epilepsy is not the only cause of all such cases. Double or multiple consciousness may be induced by many different causes, and epilepsy is but one of them. *Epilepsy and the phenomena of multiple consciousness must by no means be identified.* When we find a case of amnesia and double consciousness without any typical epileptic attacks, we are not justified to ascribe it to epilepsy, simply because such phenomena are also manifested in this disease. The moon is one of the causes of light, but it does not follow that wherever there is light the moon must necessarily be present. Moreover, the secondary states, or the moments consciousness found in the epileptic "Dämmerzustände," are of a very low type, because the disintegration is deeper and more extensive. Epilepsy and multiple consciousness should not be confounded; one can exist without the other. There is epilepsy with no organized double or multiple consciousness, and there is organized double consciousness with no epilepsy. In our sleep, which no one will deny as being a perfectly healthy and normal state, nearly every one of us, some time or other, presents phenomena of mental segmentation. Some isolated area of the brain or rather a constellation of clusters of neurons continues or begins to function and we get some type of hypnoidic states in the form of very vivid dreams. We find this especially to occur in children, who often cry, play and act out their dreams, living over in these states the more striking events of their life. A child, for instance, is frightened by a dog that ran over it. In its dream the child lives over again the occurrence of the day, and it cries out with fear. Children are known to sing in their dreams, remarking then, "That is enough; I cannot sing any more." Every father and mother, who have paid attention to their children, will

tell you of such vivid dreams. If now the phenomena of multiple consciousness were nothing but a form of epilepsy, a "masked epilepsy," or, as some term it, a "psychic epilepsy," then we are all of us confirmed epileptics. One thing, however, is perfectly clear from the study and analysis of the cases of multiple consciousness, and that is the preliminary condition of such states. *The prerequisite of multiple consciousness is either a highly complex organization or, what is more frequent, an unstable neural equilibrium.*

To effect an overthrow of this neural equilibrium some agents are required. This, as we have just pointed out, may be of any kind, only they must either be of an intensity stronger than the usual stimuli, or of a low intensity, but durable in their hurtful activity. In short, the intensity of a normal stimulus or the duration of hurtful irritation may produce the same effect. Once such an effect is induced and the principal constellation is broken up, or disintegrated, an attack of unconsciousness sets in, an attack which may be of any duration, sometimes occupying a few minutes only, and sometimes covering a period of many hours, and even days. The disintegration is a form of cerebral shock akin to one induced by direct excision of the frontal lobes or of other areas of the brain in the psychophysiological experiments on localization.

The principal organization of the leading constellations of systems is disintegrated, and on account of the shock no other moment is yet organized to take the lead and become the focus of the disturbed stream of mental life. Systems with accompanying moments consciousness may arise and attempt to form a focus, but not being well organized, and not being able to concentrate enough psychic content so as to maintain their own existence, they fall back into the same obscurity from which they come, and other moments take their place, until at last a moment comes to the surface, a moment fit to survive and able to maintain itself

above the threshold of self-consciousness. The whole process is a struggle for existence among the many systems, among the many moments constituting man's mental life. Only the fittest survive.

Meanwhile, during the whole course of this process the patient remains in a "deep sleep," in a state of unconsciousness. A deep sleep, or a state which we may practically term unconsciousness, since the higher moments or systems are disaggregated and "inhibited," and only the lower ones remain and continue their function, is a necessary preparatory stage of the phenomena of double or multiple consciousness. All the cases analyzed and studied by us present this stage. Where it is absent, where the patient, without falling into an unconscious condition, directly before our eyes begins to manifest a different personality with loss of memory, we should have our eyes wide open and be strongly suspicious of the genuineness of the case. *A state of unconsciousness or of low moment consciousness precedes the first manifestations of double or multiple personality.*

It does not require a close scrutiny to discover that in all cases of mental alternation one state does not directly merge into the other. Between the two there is a state of unconsciousness or of deep sleep, however short it may be. One synthetic moment does not directly touch the other in time. The point of the end of one moment does not form the starting-point of another. The two alternately functioning systems are separated by an interval of unconsciousness, however short. At first the interval is long, extending over a period of many minutes, or even hours, but gradually, with the repetition of the alternation, this interval becomes shorter and shorter, and is finally reduced to but a few seconds.

In the first cycles of multiple consciousness none of the moments are well organized, each of the leading functioning moments can maintain itself above the threshold

of personality only for a short time. With the disintegration of the latter another constellation with its correlative moment begins to rise, reaches the threshold of self-consciousness, steps it over and begins to function; the moment not being well organized, the process takes a considerable time. As the cycles of alternation are more and more repeated, the alternating moments become well organized and the time of the submergence of one and the emergence of the other becomes considerably reduced, but still the process must occupy some fraction of time, however short; hence the intermediary stage of "deep sleep," the state of unconsciousness. In passing from one state to the other the deep sleep must invariably be present. This is the *hypnoleptic state.*

The hypnoleptic state is a true attack. It sets in with a state of irresistible drowsiness, the patient still having consciousness of his environment, and stimuli, which must become more and more intense as the state of drowsiness deepens, reach the subsiding synthetic moment consciousness and bring it into momentary activity again. The patient can be aroused, but only for a brief space of time, for a second or a fraction of it, and soon falls back into the drowsy condition. As the drowsiness deepens the patient's reaction to external stimuli becomes less and less, and finally a point is reached beyond which no stimuli, however intense, can possibly arouse the patient—he is in an unconscious state. The hypnoleptic state can therefore be divided into two stages. One may be characterized as the first stage or the stage of drowsiness. The state that follows may be characterized as the second or the stage of unconsciousness.

The stage of drowsiness or the first stage of the hypnoleptic state is of the utmost importance for theoretical, experimental, as well as for practical therapeutic purposes. It is in this stage that the true crisis of alternation begins. One functioning moment is slowly subsiding, while

another moment is being formed and is slowly rising to its dominant position in consciousness.

Now, basing myself on this theoretical knowledge of the hypnoleptic state, I was enabled to bring about a synthesis in the Hanna case of the two dissociated systems or moments. The hypnoidic and the hypnoidal states clearly revealed the formation of independent centres, of independent constellations in the subconscious regions of the patient's mind. There were many centres, many systems of neurons of the disaggregated constellation with its concomitant synthetic moment of self-consciousness. They were in a state of formation. The incessant bringing up of the hypnoidal states by means of experimentation, the methods of psychic and physiological stimulation employed by me, of which an account was given in a previous chapter, stimulated those independent constellations to a more active function, which was bound to result in their synthesis.

The treatment was the first experiment of the kind in the effectiveness of synthesis, since, as we have seen, in no case of multiple personality was a synthesis brought about. So much so, that Ribot, in his book, "Diseases of Memory," tells us that "observation does not show that its chasm is ever bridged over by direct recollection." The cases were of long standing, the alternations of personalities continuing for years, and sometimes the whole lifetime; the only one who attempted to effect a synthesis was Professor James, but he unfortunately failed, as he employed a wrong method, not basing his attempt on the insight into the mechanism of this form of mental malady. The fact that such a synthesis, or, as Ribot terms it, a bridge, was until now not effected in any of the cases, made the great French psychologist stop short in his conclusions and say that "two suppositions are possible, either the registration of anterior states is effaced, or the conservation of anterior states persisting their power of revivication by association with the

present is destroyed. It is impossible to decide arbitrarily between these two hypotheses.'' In the case of Hanna the *chasm was bridged over by direct recollection*, thus demonstrating the correctness of the second hypothesis.

The methods for bringing about a synthesis were worked on my theory of the moment consciousness. Each step was controlled by this theory, and each phenomena as it came along was foreseen beforehand. I think, therefore, that this was an *experimentum crucis* of the truth of my position. Once the disaggregated moments became synthetized they formed one synthetic moment embracing the whole content of experience up to the time of the accident. Their stimulation and the memory of the functioning constellation of mental systems brought the old, now reintegrated moment, to the surface of the waking consciousness. This always took place at night, in sleep, when the constellation of the secondary state was in abeyance and the primary could come forth and assume supremacy.

The primary state, however, could not long maintain itself, the common synthetic bond of associative activity was weak, and the whole moment gradually began to subside into the subconscious in the disaggregated form, in which it had been before. It was a matter of fatigue and rest. The patient began to feel drowsy and gradually passed into the second stage of the hypnoleptic state where no external stimuli could bring him to self-conscious life until the moment consciousness of the secondary state stepped over the threshold of self-consciousness. The patient woke up in the secondary state.

Our efforts were then directed toward a more frequent alternation of the two formed centres, of the two foci, of the two synthetic moments consciousness. This, as we know, according to the law of alternating moments, tends to shorten the hypnoleptic state. Fortunately, the hypnoleptic state in our case was a very short one, lasting only

a few minutes at the start, and two or three alternations sufficed to reduce it to seconds.

Another method to reduce the total time of the hypnoleptic state was stimulation during the hypnoleptic state itself. Powerful stimuli, acting simultaneously on all the senses, were applied to the patient. This stimulation was of importance to reduce the time of the last stages of the hypnoleptic state. For, in the last stages of the hypnoleptic state, the constellation of systems with its moment consciousness representing the secondary state was almost fully formed and near the lower threshold of self-consciousness; the stimulation helped the moment to rise earlier than it would have done otherwise. The duration of the hypnoleptic state was thus greatly shortened. The interval between the two, now more or less firmly organized moments, became reduced, and the moments were then nearer to each other in time.

When the hypnoleptic state set in, the constellation with the second moment became quickly organized and rapidly rose to the threshold of consciousness. Once this was effected our efforts were directed toward retarding as long as possible the subsiding constellation with its concomitant primary state, so that the moments, the subsiding one and the rising one, should meet and catch a glimpse of each other; in short, the whole course of our treatment was bent on one purpose, namely, to make the two moments simultaneous, even though for the briefest space of time. This could not act otherwise but result in a synthesis of both. The two alternating moments separated by the hypnoleptic state, by having them appear simultaneously, came in close touch, *perceived* each other for the first time.

At first the two met like enemies, but soon they had to acknowledge their intimate relationship and the synthesis was effected, though in a very laborious fashion. Thus the synthesis of the two alternating dissociative moments or mental systems was brought about by the shortening of the

total period of the hypnoleptic state, then by the shortening of the secondary stage, and lastly by the lengthening of the primary stage of the hypnoleptic state. In other words, to effect a *synthesis we have to shorten the secondary stage and lengthen the primary stage of the hypnoleptic state.*

The hypnoleptic state is not only of the highest importance for theoretical and therapeutical purposes, but it is also of the utmost consequence from a purely diagnostic purpose. Thus I know of a case of double consciousness where the patient feigned this pathological condition and duped his physician for some time. The patient wanted to be kept in the hospital so as to escape the burden of the duties of life. Now, had the physicians known of the intermediary sleeping state, they would not have been so badly duped. Besides, the fact that there were many other flagrant contradictions in the case, the fraud could even at first sight have been detected, because the patient, after having been in the hospital for a few days, passed, in the presence of the physicians, into the primary state, directly while in the full possession of his consciousness. No sleeping state intervened between the secondary and primary state. Such a case is a fraud. It must be borne in mind that the law of monocyclical or polycyclical bimorphosis is: *no mental alternation without some form of an intermediary sleeping state in general and of a hypnoleptic state in particular, especially in the transition from the primary to the secondary moment.*

The intermediary states, the sleeping and especially the hypnoleptic state, now require our attention. What are they? How do they originate? And why is it that we find that while the transition from the secondary to the primary is through the condition of ordinary sleep, taking place usually at night, the contrary is the case in the transition from the primary to the secondary? In other words, why should the transition between the primary and secondary state take place through an "attack," through a

hypnoleptic state? The answer is because the sleeping state represents the absence of any dominant functioning moment, and that is what takes place in the interval of the alternation of the moments. But what is that hypnoleptic state? *The hypnoleptic state is the reproduction of the original attack which brought about the state of double or multiple consciousness.*

This is clearly revealed in the case of Hanna. What happened there was that the patient met with an accident, lost his consciousness and the synthetic moment became disaggregated and could not get reinstated; a new moment with new content entered into being, a secondary state became gradually formed and trained. The original order then was: (1) the primary state, representing the patient's whole previous life, (2) the state of unconsciousness, (3) the formed secondary state. The succession of the states formed a cycle that went on repeating itself in the same order; hence we can see why the hypnoleptic state is of the nature of an attack and why the order is always of the following course,—primary state, hypnoleptic state, secondary state, and so on, never the reverse. The phenomena of double or multiple personality have a definite course of their own. Newly formed personalities pass through well-defined cycles of life, and like new worlds formed by some external or internal catastrophe, they keep on revolving within the same orbits.

THE END

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